D-55T

SERVICE MANUAL

AEP Model
UK Model
E Model
AUS Model
French Model

SONY
FM/AM Discman
OPEN

Refer to the respective SERVICE MANUALs issued separately for the information of BP-200 supplied with this set.

Discman

SPECIFICATIONS

CD section

System	Compact disc digital audio system
Disc	Compact disc
Laser diode properties	Material: GaAlAs Wavelength: 780 nm Emission duration: Continuous Laser output: Max. 0.4 mW* *This output is the value measured at a distance of about 1.6 mm from the objective lens surface on the Optical Pick-up Block.
Spindle speed	500 r.p.m. to 200 r.p.m. (CLV)
Scan velocity	1.2–1.4 m/sec.
Error correction	Sony Super Strategy Cross Interleave Reed Solomon Code
Number of channels	2
D-A conversion	16-bit linear
Frequency response	20–20,000 Hz $^{+1}_{-3}$ dB*
Dynamic range	More than 90 dB*
Total harmonic distortion	Less than 0.008 %*
Wow and flutter	Below measurable limit*
Outputs (at 9 V input level)	Line output (stereo minijack) Output level 1.6 V rms Load impedance over 10 kilohms Headphones (stereo minijack) 30 mW + 30 mW at 32 ohms

*Measured by EIAJ CP-307

Radio section

Frequency range	FM: 87.6–107 MHz (G-AEP model) 87.6–108 MHz (except for G-AEP model) AM: 530–1,605 kHz
Antennas	FM: Headphones cord or connecting cord antenna AM: Built-in ferrite bar antenna

General

Power requirements
Lead acid battery (closed type)
using Sony BP-200 rechargeable battery pack (supplied), 6 V
Eight size AA alkaline batteries (IEC designation LR6)
using Sony EBP-380 battery case (optional), 12 V
DC IN 9 V jack accepts;
Sony ac power adaptor (supplied)

Where used	Operating voltage
UK/AUS model	240 V ac, 50 Hz
AEP/FRENCH model	220 V ac, 50 Hz
E model	110–240 ac, 50/60 Hz

Sony DCC-120 car battery cord (optional) for use on 12 V car battery

Power consumption 2.6 W dc

Battery life (hours)

Batleries	Disc playing	FM reception
Rechargeable battery using the supplied battery pack BP-200	4.5	30
Eight size AA batteries using Sony battery case EBP-380 (optional)	3	25

Dimensions	Approx. 125.9×31.9×125.9 mm ($5 \times 1\frac{1}{4} \times 5$ inches) (w/h/d) not incl. inclined part (depth), projecting parts and controls Approx. 126.9×33.8×132.8 mm ($5 \times 1\frac{3}{8} \times 5\frac{1}{4}$ inches) (w/h/d) incl. projecting parts and controls
Weight	Approx. 570 g (1 lb 4 oz), net

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY SHADING AND MARK ⚠ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

CAUTION

- Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

ATTENTION AU COMPOSANT AYANT RAPPORT À LA SÉCURITÉ!

LES COMPOSANTS IDENTIFIÉS PAR UNE TRAME ET UNE MARQUE ⚠ SUR LES DIAGRAMMES SCHÉMATIQUES ET LA LISTE DES PIÈCES SONT CRITIQUES POUR LA SÉCURITÉ DE FONCTIONNEMENT. NE REMPLACER CES COMPOSANTS QUE PAR DES PIÈCES SONY DONT LES NUMÉROS SONT DONNÉS DANS CE MANUEL OU DANS LES SUPPLÉMENTS PUBLIÉS PAR SONY.

MICROFILM

FM/AM CD COMPACT PLAYER

SONY®

AUD

FEATURES

- A compact disc player combined with FM/AM tuner.
- RMS function allows selections to be played in a specified order.
- Shuffle-play function repeatedly plays selections in a random order.
- Repeat functions for the whole disc and for a particular portion
- Digital readout display—the track number on the disc and the elapsed or remaining playing time are shown on the LCD (Liquid Crystal Display) window.

TABLE OF CONTENTS

Section *Title* *Page*

Specifications 1
Features 2
Maintenance 2
Notes on Handling the Optical Pick-up Block (KSS-110G) 3
Chip Component Indications 4
Replacing Chip Components 5
Flexible Circuit Board Repairing 6
PC Boards/Switch/Motor Layouts 6
Service Mode (Service program) 7
    Step 1 (Service mode setting method) 8
    Step 2 (Service mode operation) 9
    Step 3 (Service mode release) 9
Laser Diode Check Procedure 10
Charge Circuit Check 11
Power Sources 12
Location and Function of Controls 13
Radio Reception 14
Disc Playing 14
To Search for a Particular Selection 14
To Search for a Particular Point in a Selection . . 14
Repeat Play 15
To Play the Selections in a Random Order 15
To Play the Desired Selections in the Desired Order 15
Using the Time Counter 16

SECTION 1. OUTLINE
1-1. Circuit Description 16
1-2. Block Diagram 20

SECTION 2. DISASSEMBLY AND REASSEMBLY
2-1. Disassembly 23
2-2. Mechanical Section Reassembly 25
2-3. Optical Pick-up Block (FOP) Replacement 27

SECTION 3. ADJUSTMENTS
3-1. Mechanical Adjustments 28
3-2. Electrical Adjustment 29

SECTION 4. DIAGRAMS 38
4-1. CD Section Mounting Diagram 40
4-2. CD Section Schematic Diagram 45
4-3. Radio Section Mounting Diagram 50
4-4. Radio Section Schematic Diagram 52

SECTION 5. EXPLODED VIEWS AND PARTS LIST 55

SECTION 6. ELECTRICAL PARTS LIST . . . 59

MAINTENANCE

CLEANING THE CASING

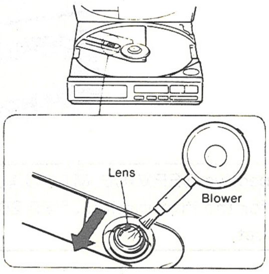
Clean the casing with a soft cloth slightly moistened with water or mild detergent solution. Do not use any type of abrasive pad, scouring powder or solvent such as alcohol or benzine as they may mar the finish of the casing.

CLEANING THE LENS

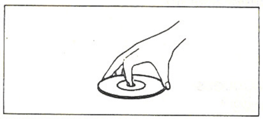
If you have accidentally touched the lens with a dirty finger or the dust on the lens prevents the set from operating properly, open the disc compartment lid with the OPEN button and clean the lens.

To remove dust

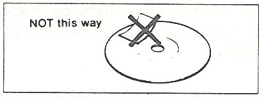
Blow on the lens a few times with a commercially available blower, brush the dust away in the direction of the arrow, then blow on the lens again.



NOTES ON COMPACT DISCS

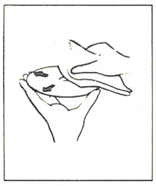


Handle the disc by its edge, and to keep the disc clean do not touch the rainbow colored surface.



Do not stick paper or tape nor write anything on the labeled surface.

Do not expose the disc to direct sunlight or heat sources such as hot air ducts, nor leave it in a car parked in direct sunlight where there can be a considerable rise in the temperature.



Before playing, clean the disc with the optional cleaning cloth.
Wipe the disc from the center out.

Do not use solvents such as benzine, thinner, commercially available cleaners or anti-static spray intended for analog discs.

After playing, store the disc in its case.

– CAUTION FOR ELECTROSTATIC BREAKDOWN –

NOTES ON HANDLING THE OPTICAL PICK-UP BLOCK (KSS-110G)

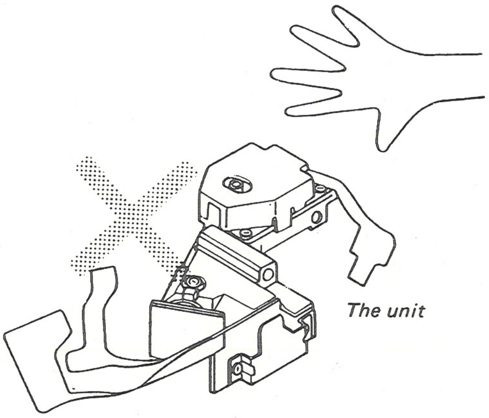
The laser diode in the optical pick-up block may suffer electrostatic breakdown because of the potential difference generated by the charged electrostatic load, etc. on clothing and the human body.
The printed matter below is included in the repair parts. During repair, use the procedure in the printed matter.
The flexible board is easily damaged and should be handled with care.
The following method is an example for reference purposes:

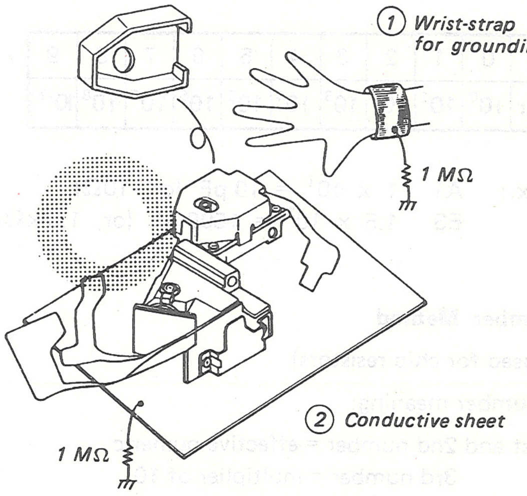
1. Place a conductive sheet on the workbench. (The black sheet used as repair parts wrapping).
2. Place the set on the conductive sheet so that the chassis touches the sheet. (This makes it the same potential as the conductive sheet).
3. Place your hands on the conductive sheet. (This makes them the same potential as the sheet).
4. Remove the optical pick-up block.
5. Perform work on top of the conductive sheet. Be careful that clothing does not touch the optical pick-up block.

Printed Matter Included in the Repair Parts

When opening or repairing the unit, the procedure for grounding as follows is required to prevent damage caused by static electricity.

1. Grounding for the human body
   Be sure to put on a wrist-strap for grounding (with impedance lower than 10^8 Ω) whose other end is grounded. The strap works to drain away the static electricity build-up on the human body.
2. Grounding for the work table
   Be sure to lay on the table a conductive sheet (with impedance lower than 10^9 Ω) such as sheet of copper, which is grounded.
3. As static electricity build-up on clothes is not drainded away, be careful not to let your clothes touch the unit.
4. Handling the flexible board
   The flexible board is easily damaged and should be handled with care.





Chip Component Indications

The official specifications which are presently indicated are EIAJ standard.

(1) MELF (leadless): EIAJ RC-8001

(2) Square chip components (laminated ceramic): EIAJ RC-3699. Square chip resistors are presently under study by EIAJ.

The following explanation covers square chip components (MELF omitted).

1. 2-letter Method (EIAJ RC-3699)

- Letter combination: letter + 1 number
- Letter meaning: letter = effective numeric
  number = multiplier

* The units used are pF for capacitors and Ω (ohm) for resistor.

(This is mainly used for Symbol and Numeric and Multiplier capacitors.)

Letter	A	B	C	D	E	F	G	H	J	K	L
Numeric	1	1.1	1.2	1.3	1.5	1.6	1.8	2	2.2	2.4	2.7
Letter	M	N	P	Q	R	S	T	U	V	W	X
Numeric	3	3.3	3.6	3.9	4.3	4.7	5.1	5.6	6.2	6.8	7.5
Letter	Y	Z	a	b	d	e	f	m	n	t	y
Numeric	8.2	9.1	2.5	3.5	4	4.5	5	6	7	8	9

Number	0	1	2	3	4	5	6	7	8	9
Maltiplier	10^0	10^1	10^2	10^3	10^4	10^5	10^6	10^7	10^8	10^{-1}

- Ex.: A1 1×10^1 = 10 pF (or, 10Ω)
  E3 1.5×10^3 = 1500 pF (or, 1.5 kΩ)

2. 3-number Method

(Mainly used for chip resistors)

- Number meaning:

  1st and 2nd number = effective numeric
  3rd number = multiplier of 10

  Unit: pF for capacitor, for resistor

- Ex.: 103 10×10^3 = 10000Ω = 10 kΩ
  (or, 0.01 μF)
  224 22×10^4 = 220000Ω = 220 kΩ
  (or, 0.22 μF)

3. 4-letter Method (used for capacitor)

- Letter combination: 3 numbers + 1 letter
- Letter meaning: number = effective numeric + multiplier of 10
  (same as 3-number method)
  letter = capacitor response
- Symbol and Response

〈For temperature compensation〉

Symbol	C	P	R	S	T	U	(NO)
Response	CΔ	PΔ	RΔ	SΔ	TΔ	UΔ	SL

Δ is temperature coefficient tolerance, and is G, H, J, K.

〈For high dielectric constant〉

Symbol	K	Z
Response	B	F

- Ex.:

$\boxed{\begin{array}{c}47\\3Z\end{array}}$ ➡ 47×10^3 = 47000pF = 0.047μF F response

$\boxed{\begin{array}{c}15\\1R\end{array}}$ ➡ 15×10^1 = 150pF RΔ response

$\boxed{\begin{array}{c}22\\2\end{array}}$ ➡ 22×10^2 = 2200pF SL response

Replacing chip components

All chip components should be connected and disconnected, using a tapered soldering iron [temperature of the iron tip: less than 280°C (536°F)], a pair of tweezers and braided wire.

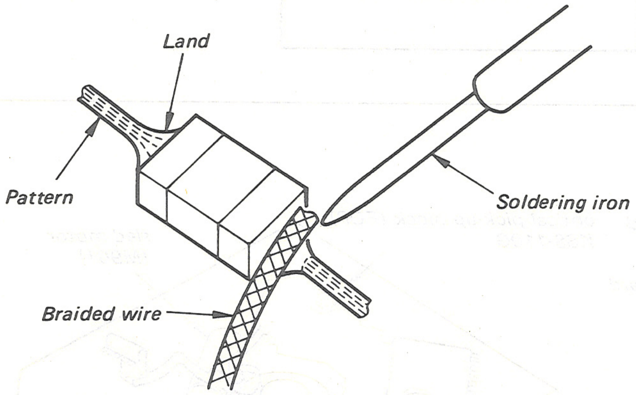
Precautions for replacement

1. **Do not disconnect the chip component forcefully. Otherwise, the pattern may peel off.**
2. **Never re-use a disconnected chip component. Dispose of all old chip components.**
3. **To protect the chip component, heating time for attaching the component should be within 3 seconds.**

○ Removing chip components

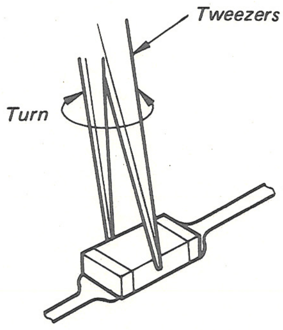
(1) Removing solder at electrode

Remove the solder at the electrode, using a thin braided wire. Do not remove the solder of the part (chip component) attached adjacent to the electrode.



(2) Disconnecting chip components

Turn the tweezers with the soldering iron alternately applied to both electrodes, and the chip component will be disconnected. Take careful precautions while disconnecting, because if the chip component is forcefully removed the land may peel off.
Never re-use a disconnected chip component.



(3) Smoothing the soldered surface

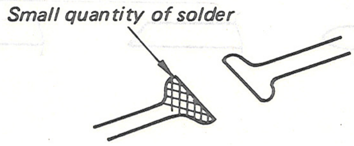
After disconnecting the chip component, remove the solder by using a braided wire to smooth the land surface.

○ Connecting chip components

The value of chip components is not displayed on the main body. Take due precautions to avoid mixing new chip components with other ones.

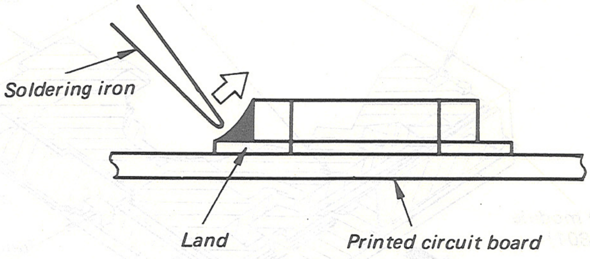
(1) Applying solder to land on one side

Apply a thin layer of solder to the land on one side where the chip component is to be connected. Too much solder may cause bridging.



(2) Speedy soldering

Hold the chip component at the desired position, using tweezers, and apply the soldering iron in the arrow-marked direction. To protect the chip component, heating time should be within 3 seconds.



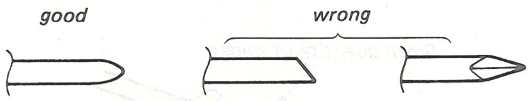
(3) Speedy soldering of electrode on the other side

Solder the electrode on the other side in the same way as in (2) above.

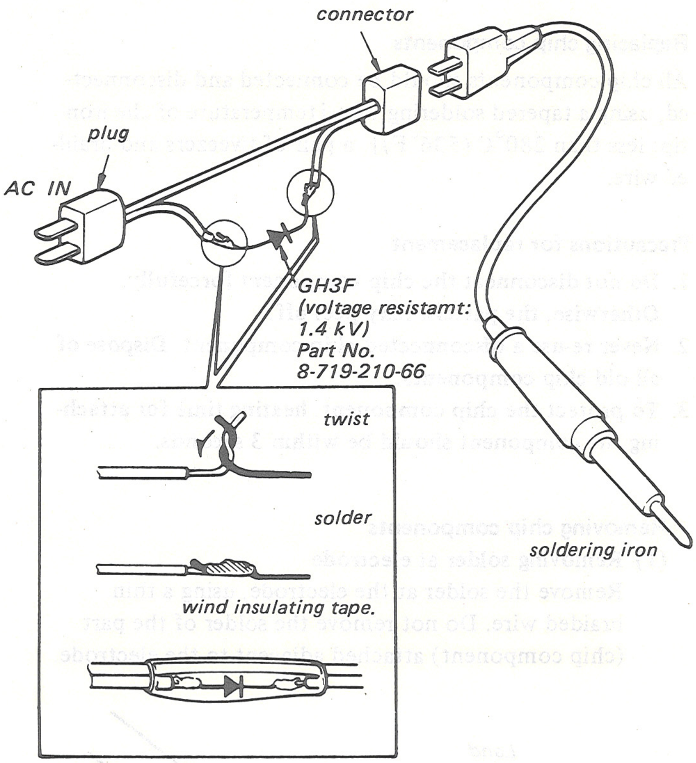
Flexible Circuit Board Repairing

1. Keep the temperature of the soldering iron at 270° ± 10°C during repairing.
   You can maintain the temperature of the soldering iron around 270°C by using the thermal controller as illustrated on the right.
2. Do not touch the soldering iron more than 4 seconds or 3 times on the same conductor of the circuit board.
3. Do not apply force on the conductor when soldering or unsoldering.

Tip of soldering iron

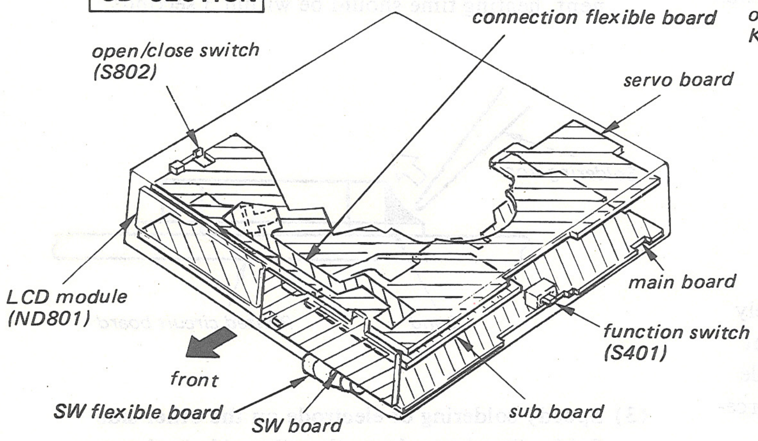


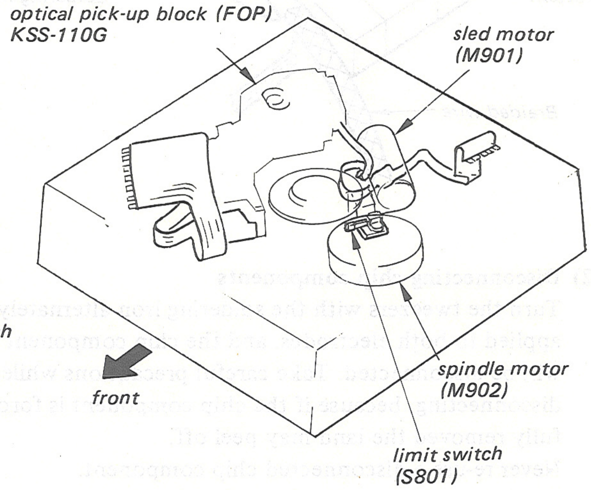
To make thermal controller of soldering iron


connector
plug
AC IN
GH3F
(voltage resistamt:
1.4 kV)
Part No.
8-719-210-66
twist
solder
wind insulating tape.
soldering iron

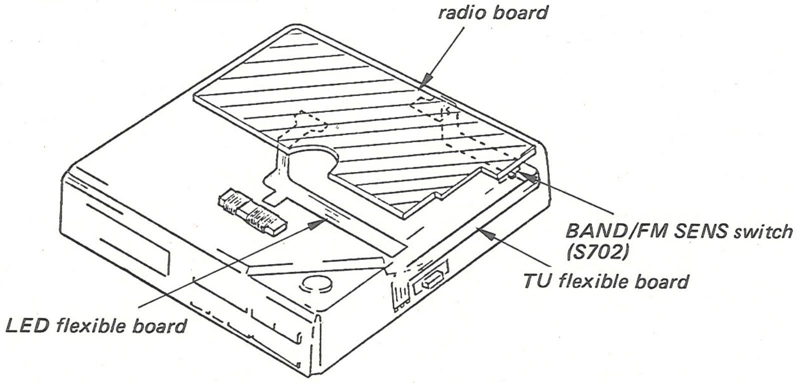
PC BOARDS/SWITCH/MOTOR LAYOUTS

CD SECTION


open/close switch
(S802)
connection flexible board
servo board
main board
function switch
(S401)
LCD module
(ND801)
front
SW flexible board
SW board
sub board


optical pick-up block (FOP)
KSS-110G
sled motor
(M901)
spindle motor
(M902)
front
limit switch
(S801)

RADIO SECTION


radio board
BAND/FM SENS switch
(S702)
TU flexible board
LED flexible board

SERVICE MODE (service program)

As shown on page 18, 19 the program on this set selects either service program routine or normal routine after power supply is connected and a $\overline{\text{RESET}}$ signal enters. When it enters service program routine, the microcomputer brings the necessary job from each subroutine corresponding to the key input, and executes that job. Operation check can be performed efficiently using this mode. The operation method of service mode is explained below.

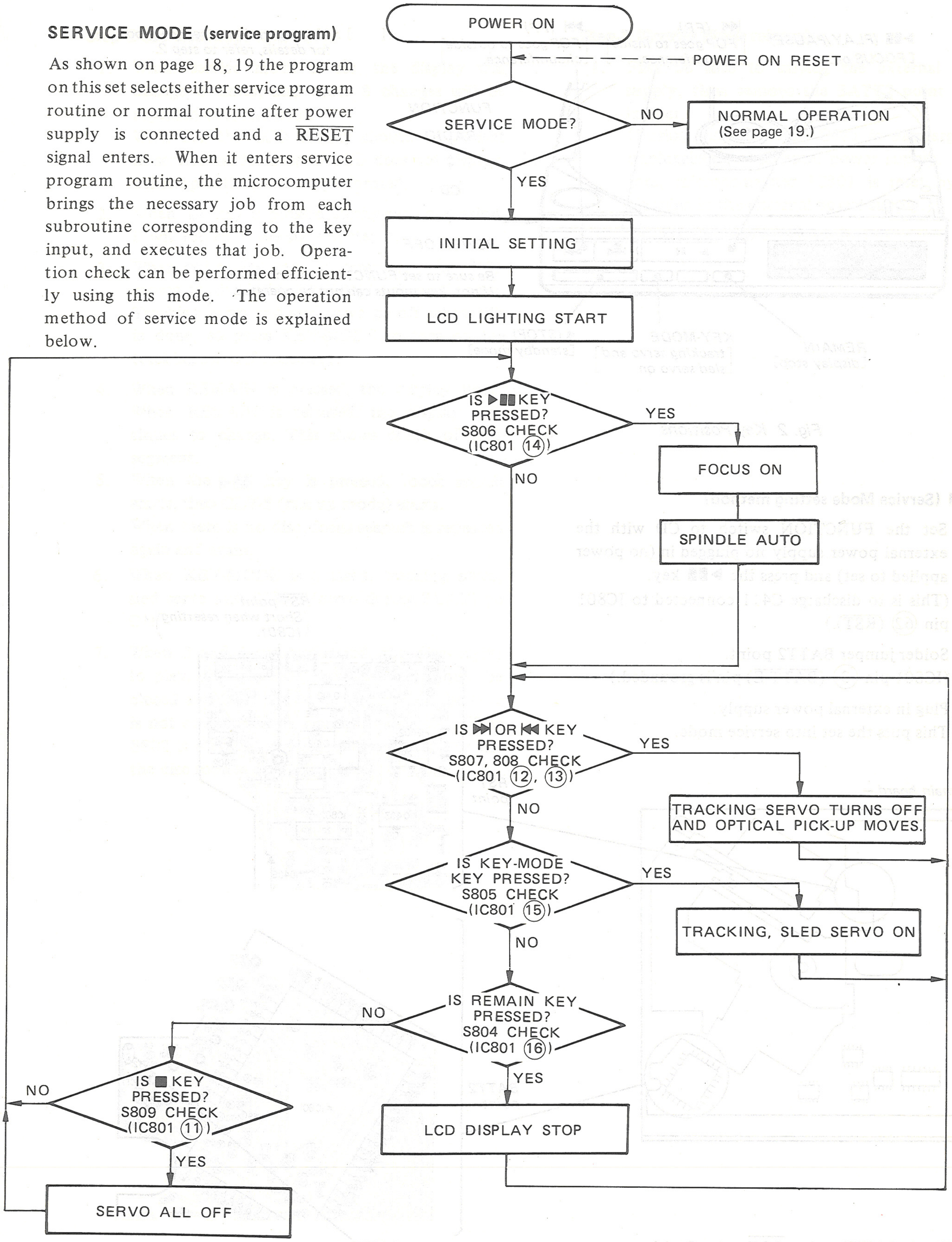
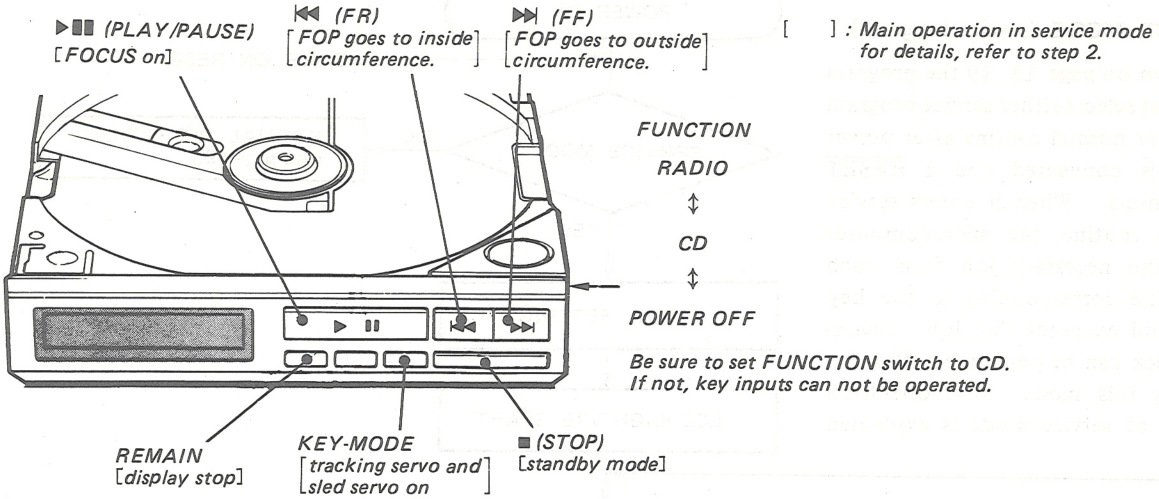

POWER ON
POWER ON RESET
SERVICE MODE?
NO
NORMAL OPERATION
(See page 19.)
YES
INITIAL SETTING
LCD LIGHTING START
IS ▶▮▮ KEY PRESSED? S806 CHECK (IC801 ⑭)
YES
FOCUS ON
SPINDLE AUTO
NO
IS ▶▶| OR |◀◀ KEY PRESSED? S807, 808 CHECK (IC801 ⑫, ⑬)
YES
TRACKING SERVO TURNS OFF AND OPTICAL PICK-UP MOVES.
NO
IS KEY-MODE KEY PRESSED? S805 CHECK (IC801 ⑮)
YES
TRACKING, SLED SERVO ON
NO
IS REMAIN KEY PRESSED? S804 CHECK (IC801 ⑯)
NO
YES
LCD DISPLAY STOP
IS ■ KEY PRESSED? S809 CHECK (IC801 ⑪)
NO
YES
SERVO ALL OFF

Fig. 1 Service Program Flow Chart


▶II (PLAY/PAUSE)
[FOCUS on]
◀◀ (FR)
[FOP goes to inside circumference.]
▶▶ (FF)
[FOP goes to outside circumference.]
[ ] : Main operation in service mode for details, refer to step 2.
FUNCTION
RADIO
↕
CD
↕
POWER OFF
REMAIN
[display stop]
KEY-MODE
[tracking servo and sled servo on]
■ (STOP)
[standby mode]

Be sure to set FUNCTION switch to CD.
If not, key inputs can not be operated.

Fig. 2 Key Positions

Step 1 (Service Mode setting method)

1. Set the FUNCTION switch to CD with the external power supply no plugged in (no power applied to set) and press the ▶II key.
   (This is to discharge C411 connected to IC801 pin ㊷ ($\overline{\text{RST}}$).)
2. Solder jumper BATT2 point.
   (IC801 pin ③ ($\overline{\text{BATT-E}}$) pin is grounded.)
3. Plug in external power supply.
   This puts the set into service mode.

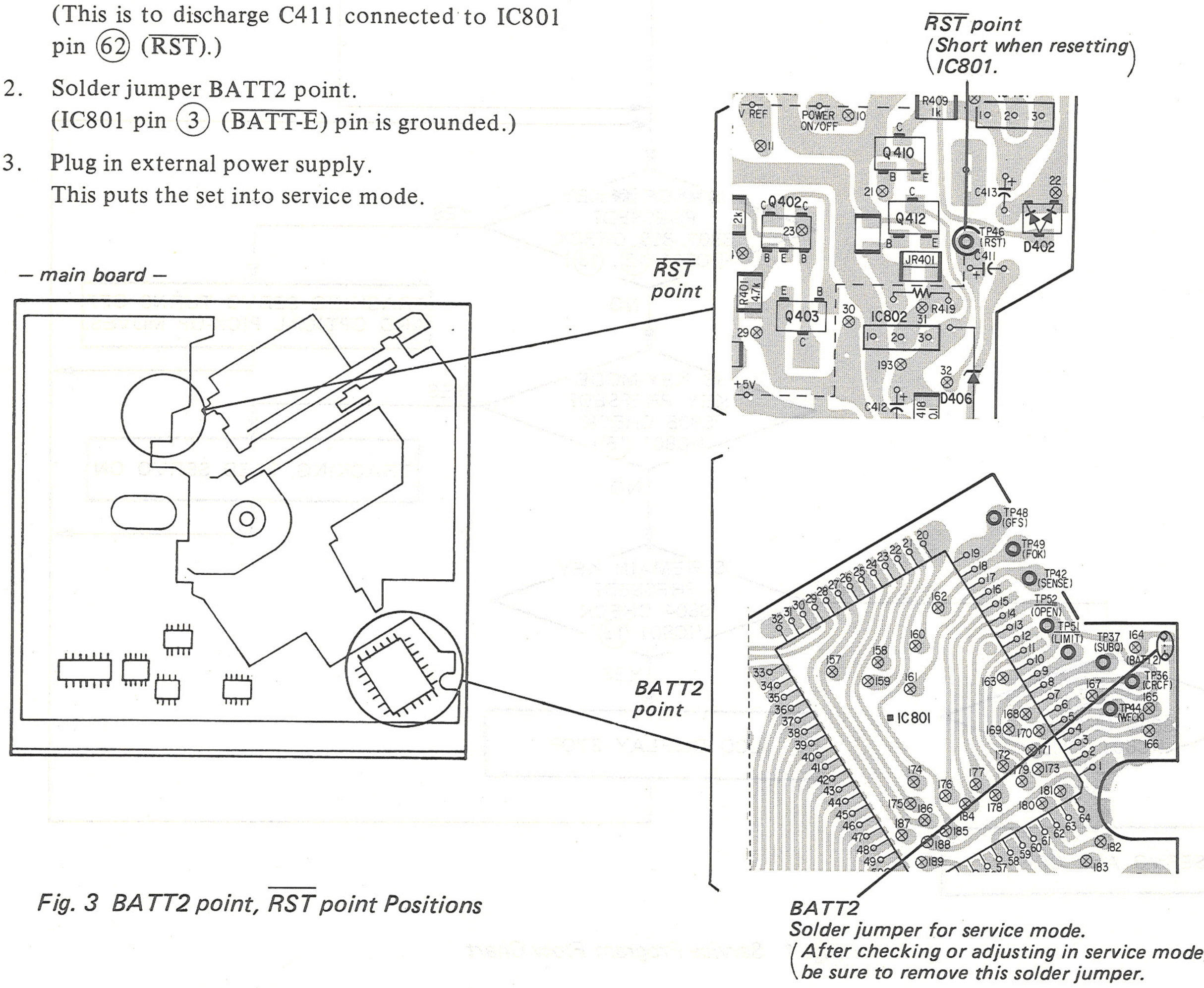

$\overline{\text{RST}}$ point
(Short when resetting IC801.)
— main board —
$\overline{\text{RST}}$ point
BATT2 point
V REF
POWER ON/OFF
R409 1k
Q410
Q412
Q402
C413
D402
TP46 (RST)
C411
JR401
R401 4.7k
R419
Q403
IC802
D406
C412
+5V
TP48 (GFS)
TP49 (FOK)
TP42 (SENSE)
TP52 (OPEN)
TP51 (LIMIT)
TP37 (SUBQ)
(BATT2)
TP36 (CRCF)
TP44 (WFCK)
IC801

Fig. 3 BATT2 point, $\overline{\text{RST}}$ point Positions

BATT2
Solder jumper for service mode.
(After checking or adjusting in service mode, be sure to remove this solder jumper.)

Step 2 (Service Mode operation)

1. When service mode is set, the display will change 8 times, and those 8 changes will be repeated over and over.
   With this the LCD display should be present in service mode. Even if LCD does not display, other operations will be performed.
2. When ■ key is pressed during each operation, it will return to the state in step 1.
3. When ▶▶| or |◀◀ key is pressed, the FOP moves to the inside or outside circumference. Tracking servo and sled servo go off when this is done, so press KEY-MODE to turn on the tracking servo if necessary.
4. When REMAIN is pressed, the display stops. When REMAIN is released, the display continues to change. This allows check of each segment.
5. When the ▶❚❚ key is pressed, focus search starts, then CLV-S (run up mode) starts.
   When there is no disc, focus searach is repeated again and again.
6. When KEY-MODE is pressed, tracking servo, sled servo and CLV-A (servo during PLAY) go ON.
7. When 5 and 6 are performed, the disc begins to play. At this time, the top panel should be closed and S802 are to be ON. When the laser is not emitted, focus search is repeated. When S802 is off, CLV-S does not work properly and the disc rotates at high speed.

Step 3 (Service Mode release)

1. First be sure to unplug the external power supply, then remove the BATT2 point solder jumper.
   (During service mode, C411 is discharged by unplugging the external power supply. Therefore, microcomputer IC801 is reset by next plugging in the external power supply.)
2. The set will now operate normally.

NOTES ON LASER DIODE EMISSION CHECK

The laser beam on this model is concentrated so as to be focused on the disc reflective surface by the objective lens in the optical pick-up block. Therefore, when checking the laser diode emission, observe, from more than 30 cm away from the objective lens.

Laser Diode Check Procedure

The laser diode on this set will not emit unless the top panel is closed S802 (leaf SW type) is turned on. The laser diode will always emit even if focus search is not performed in service mode.

The laser diode is checked using the current value which flows to the laser diode inside the FOP.

Procedure 1 (service mode or normal operation)
Check the laser diode emission with the eye.

1. Open upper panel and turn S802 on as Fig. 5. (In service mode, this operation is not necessary.)
2. Press the ▶II key. (In service mode, this operation is not necessary.)
3. Observe the objective lens and confirm that the laser diode is emitting light. At this time, the laser diode goes on about 3 seconds due to focus search. If it does not, APC circuit or FOP is defective.

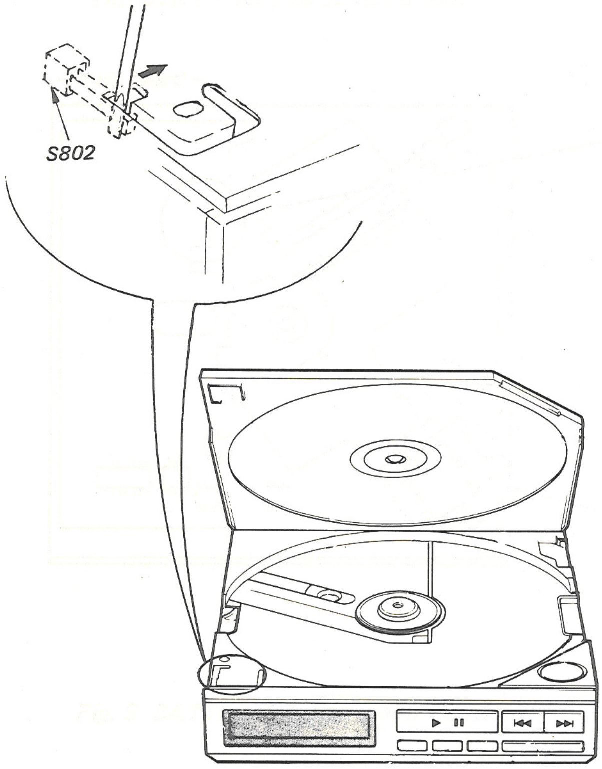
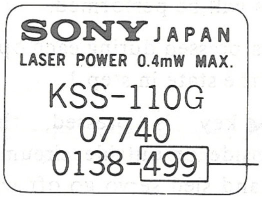


Fig. 5 Turning S802 on

Procedure 2 (service mode or normal operation)
Check by the curent with flows in the laser diode.

1. Close the top panel.
2. Remove the main board and read the current value on the label affixed to the FOP. (Label on FOP)


SONY JAPAN
LASER POWER 0.4mW MAX.
KSS-110G
07740
0138-499

current value
This means 49.9 mA.

The current value varies with the set.

3. Connect a VOM as shown in Fig. 6.
4. Press the ▶II key.
5. Calculate the current by the VOM reading. VOM reading (V) ÷ 19.5 = current (A)
   ex. VOM reading = 0.97 V
   0.97 ÷ 19.5 = 0.0497 (A) = 49.7 (mA)
6. Confirm that the ammeter reading is within the range given below.
   value on label $^{+11}_{-5}$ mA (25°C)
   variation relative to temperature:
   0.4 mA/°C
   (Current increases when temperature rises and decreases when it drops.)
   If the value is more than the range given, APC circuit has been defective or the laser diode has deteriorated. If it is less, APC circuit or FOP is defective.

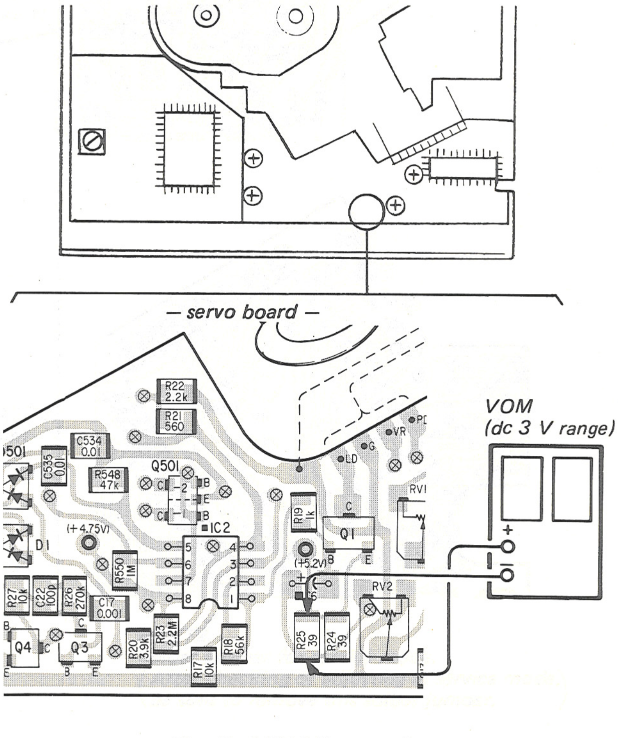


Fig. 6 VOM Connection

CHARGE CIRCUIT CHECK

1. Connect a 10 kΩ resistor as shown in Fig. A. (Between pin ① and pin ③ of battery terminal CNJ401.)
2. Supply 9 V dc through external power jack.
3. If the voltage of pin ② of CNJ401 is 7.3 V, charge circuit is normal.

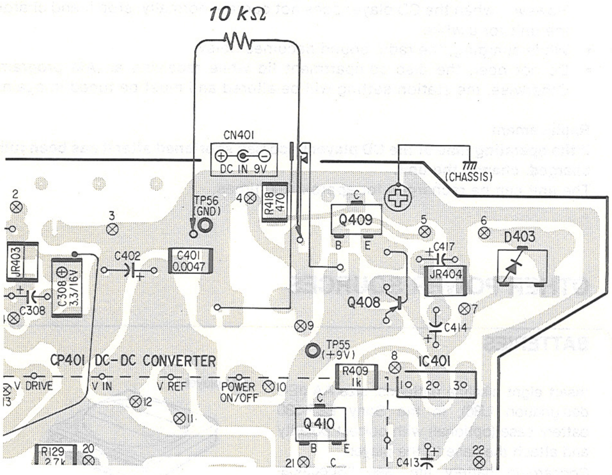

10 kΩ
CN401
DC IN 9V
TP56 (GND)
R418 470
(CHASSIS)
Q409
C401 0.0047
C402
JR403
C308 3.3/16V
C308
D403
C417
JR404
Q408
C414
TP55 (+9V)
CP401 DC-DC CONVERTER
V DRIVE
V IN
V REF
POWER ON/OFF
R409 1k
IC401
Q410
C413
R129 2.7k

Fig. A Connection

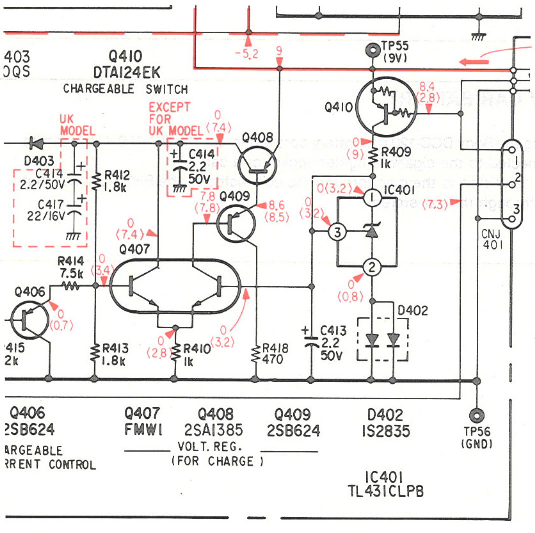

TP55 (9V)
Q410 DTA124EK
CHARGEABLE SWITCH
UK MODEL
EXCEPT FOR UK MODEL
D403
C414 2.2/50V
C417 22/16V
R412 1.8k
Q408
Q409
Q407
R414 7.5k
Q406
R413 1.8k
R410 1k
R418 470
R409 1k
IC401
C413 2.2 50V
D402
CNJ 401
TP56 (GND)
-5.2
9
8.4 (2.8)
0 (9)
0 (3.2)
(7.3)
0 (7.4)
7.8 (7.8)
8.6 (8.5)
0 (3.2)
0 (7.4)
0 (3.4)
0 (0.7)
0 (2.8)
0 (3.2)
0 (0.8)
Q406 2SB624 CHARGEABLE CURRENT CONTROL
Q407 FMW1
Q408 2SA1385
Q409 2SB624
VOLT. REG. (FOR CHARGE)
D402 1S2835
IC401 TL431CLPB

Fig. B Voltages of Each Part

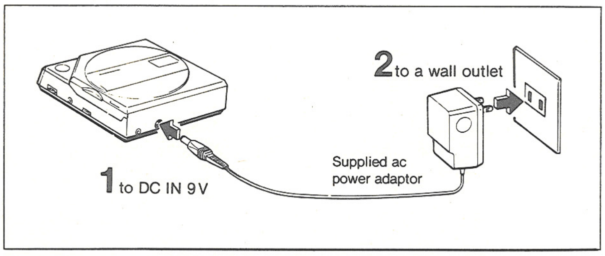
- Power voltage is 9 V and fed with regulated dc power supply from DC IN 9 V (external power) jack.
  Readings are taken under so-signal conditions with a VOM (50 kΩ/V).
  no mark : stop condition in service mode.
  < >: stop condition on normal operation when FUNCTION SW is CD by connecting a 10 kΩ resistor between pin ① and pin ③ of CNJ401.
- Voltage variations may be noted due to normal production tolerances.

POWER SOURCES

Power can be supplied to the set in any of the following ways.

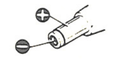
Power source	Equipment required
House current (120 V ac)	AC power adaptor (supplied)
Rechargeable battery	Sony BP-200 rechargeable battery pack (supplied)
Eight alkaline batteries size AA (IEC designation LR6)	Sony EBP-380 battery case (optional)
Car battery (12 V)	Sony DCC-120 car battery cord (optional)

HOUSE CURRENT


2 to a wall outlet
Supplied ac power adaptor
1 to DC IN 9 V

When the set is not used, be sure to disconnect the ac power adaptor.

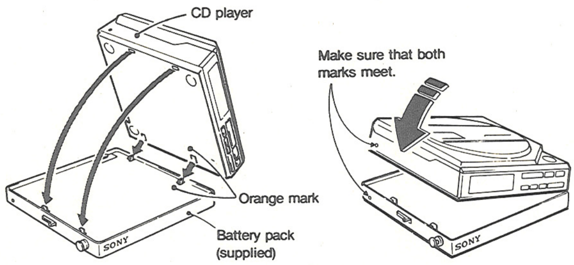
Note: Use only the supplied ac power adaptor or the recommended car battery cord manufactured by Sony. Polarity of the plugs of other manufacturers may be different.



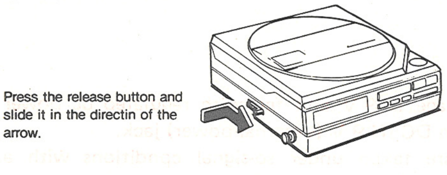
Polarity of Sony plug

RECHARGEABLE BATTERY PACK

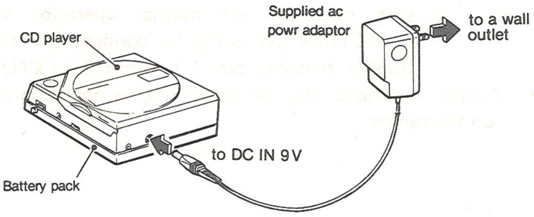
To attach to the CD player


CD player
Make sure that both marks meet.
Orange mark
Battery pack (supplied)
SONY
SONY

To remove the unit


Press the release button and slide it in the directin of the arrow.

How to recharge the battery pack


Supplied ac powr adaptor
to a wall outlet
CD player
to DC IN 9V
Battery pack

Charging time

- Before using the battery pack for the first time, charge it for approx. eight hours.
- The unit charged for eight hours (completely charged) allows approx. 30 hours of radio reception and 4.5 hours of continuous disc playing.
- The unit charged for five hours (90% charged) allows approx. 25 hours of radio reception and four hours of continous disc playing.

Notes

- For charging, use only the ac power adaptor supplied with the CD player. If not, the player will be damaged.
- Do not recharge the battery pack or operate the connected CD player on car battery.
- The CD player can also be operated during charging. In this case, approx. 24 hours are necessary for a full charge.
  However, when the CD player does not operate normally, stop it and charge the unit for a while.
- While charging, the radio sound becomes noisy.
- Do not open the disc compartment lid while receiving an AM program. Otherwise, the station setting will be altered and must be tuned in again.

Replacement

If the operating time of the CD player becomes shortened after it has been fully charged, change the unit.

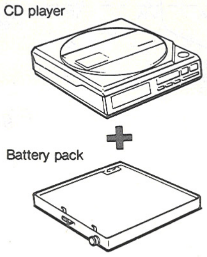
The unit can be recharged for approx. 200 times.

OTHER POWER SOURCES

BATTERIES

Insert eight alkaline batteries, size AA (IEC designation LR6), in the Sony EBP-380 battery case (optional) with correct polarity and attach the case to the player.

Concerning battery life, see "Specifications" on page 1.

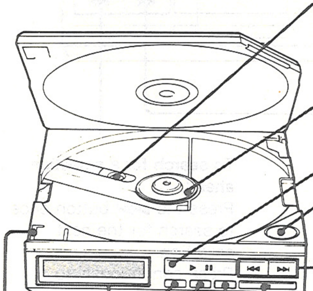

CD player
Battery pack

12 V CAR BATTERY

Using the Sony DCC-120 car battery cord (optional), the DC IN 9 V jack can be connected to the cigarette lighter socket of a car.
You can listen to the disc through the connected to the PHONES jack, but not through the car stereo.

LOCATION AND FUNCTION OF CONTROLS

Front



Lens
The laser beam is emitted from this point to pick-up the signal on the disc.

Disc compartment

▶II (play / pause) button

OPEN button

AMS / Search (|◀◀, ▶▶|) buttons
Press to locate the beginning of the desired selection (AMS) or to locate the desired point in a particular selection (Search).

Display window

Safety slot
Do not put anything in this slot. If the disc compartment lid is not firmly closed, the laser beam emission will not be contained.

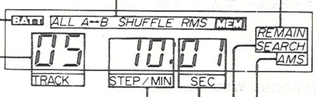
■ (stop) button

KEY MODE button
Press to select either the AMS or Search function.

PLAY MODE button
Press to select one of five play modes:
Normal, ALL repeat,
A←→B repeat,
SHUFFLE repeat, RMS play.
Each time the button is pressed, the previous mode is cancelled.

REMAIN/ENTER button
Press so that the time counter shows the time which remains before the end of the last selection.
For A←→B repeat play and RMS play, use this button to memorize.

Display window



Play mode indicators
Indicate the following play modes.

No indicator:	Normal play
ALL:	All repeat play
A←→B:	A←→B repeat play
SHUFFLE:	Shuffle repeat play
RMS MEM :	Memorization of a displayed selection's track number
RMS:	RMS play

BATT (battery) indicator
Appears during operation.

REMAIN indicator

TRACK indicator
Shows the track number of the selection being played.

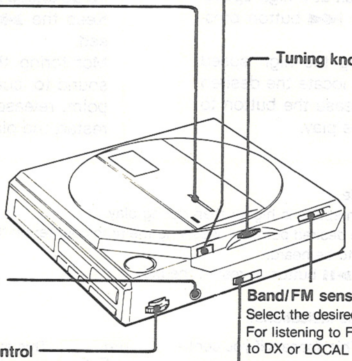
AMS indicator

SEARCH indicator

STEP/MIN (minute) indicator
Shows the elapsed playing time of the selection being played in minutes or during the RMS memorization process the order in which selections are memorized.

SEC (second) indicator

Right side



FM MODE selector (equipped with the UK model, AEP model and FRENCH model)
Normally set this selector to STEREO*.
Set the selector to MONO when noise makes it hard to hear the program. In this mode, there is not stereo effect.
***If the signal changes to mono, or the signal is very weak, the unit will automatically switch to mono mode.**

Dial scale

Tuning knob

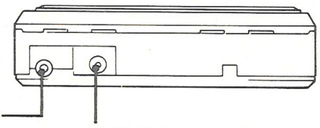
PHONES (headphones) jack
(stereo minijack)

VOLUME control
(for headphones listening)

Band/FM sensitivity selector
Select the desired band, FM or AM. For listening to FM programs, set it to DX or LOCAL for better reception.

FUNCTION selector
POWER OFF: To turn off the radio, or when transporting the unit.
CD: To listen to the CD sound.
RADIO: To listen to the radio.

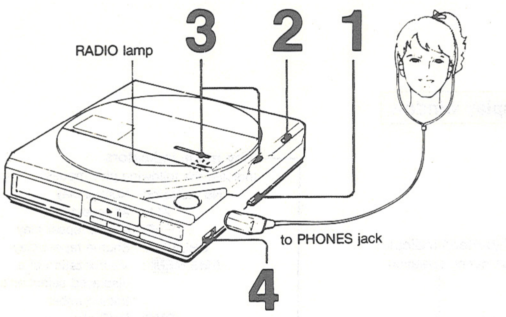
Rear panel



LINE OUT jack
(stereo minijack)

DC IN 9 V (external power input) jack

RADIO RECEPTION



1 **Set the FUNCTION selector to RADIO.**

2 **Select the desired band, FM or AM.**

3 **Tune in the desired station.**

4 **Adjust the headphones volume.**

To turn off the radio, set the FUNCTION selector to POWER OFF.

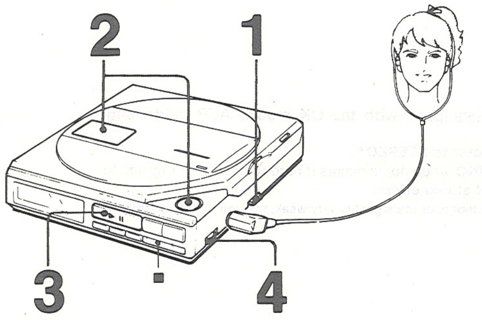
FOR IMPROVED RECEPTION

Band / FM sencitivity selector
While listening to FM programs, normally set to FM DX. If a very strong station signal causes noise, set to LOCAL. The noise will be reduced.

For stable receptions
For FM reception, extend the cord of the headphones or the connecting cord so that the sensitivity will be increased. The cord activates as an antenna.
For AM reception, the built-in ferrite bar antenna activates. Move the set for optimum reception.

If excessive noise or interruption occurs...
Keep the ▶II button pressed.
While pressing the button, no sound can be heard.

DISC PLAYING



1 **Set the FUNCTION selector to CD.**

2 **Press the OPEN button and insert a compact disc with the label surface up.** Close the disc compartment lid.

3 **Press the ▶II button.**
Play will start from the beginning of the disc.

4 **Adjust the headphones volume.**

When the player reaches the end of the last selection of the disc, the indications on the display window will disappear and the disc will stop rotating.

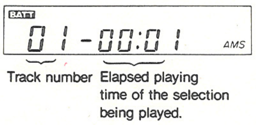
To stop play

Press the ■ button.
The disc stops rotating and power will be automatically turned off.

To pause during play
Press the **▶II button.**
The time counter on the display will blink.
To restart the play, press the ▶II button again.

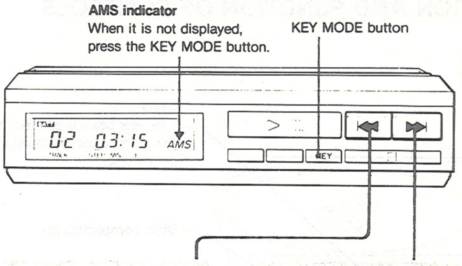
Note: Do not press the ▶II button when there is no disc inserted, as it may cause severe noise.

Display window during play



TO SEARCH FOR A PARTICULAR SELECTION
—AMS function

During play or pause, proceed as follows.



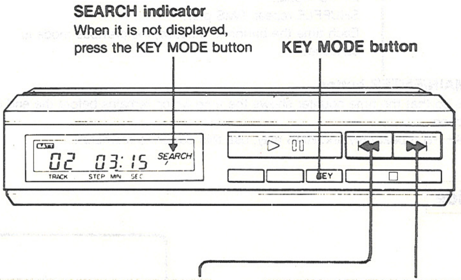
To search for a previous selection
Press the |◀◀ button once to search for the beginning of the selection being played.
Press continuously to search for a previous selection.

To search for a selection ahead
Press the ▶▶| button once to search for the next selection.
Press continuously to search for the selection after that.
After the last selection the TRACK indicator will not change.

- In the pause mode press the |◀◀ or ▶▶| button while observing the TRACK indicator on the display. The player pauses at the beginning of the desired selection.
- During RMS play, AMS operates in the memorized order.

TO SEARCH FOR A PARTICULAR POINT IN A SELECTION —SEARCH function

During play or pause, proceed as follows.

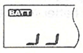


To go back at a high speed
Keep the |◀◀ button pressed.
Monitoring the high speed sound to locate the desired point, release the button to restart the play.

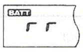
To go ahead at a high speed
Keep the ▶▶| button pressed.
Monitoring the high speed sound to locate the desired point, release the button to restart the play.

In pause mode
- The search speed is higher than during play.
- Locate the desired point by observing the time counter on the display as there is no sound to be heard.
- Press the ▶II button to restart the play.

What are these indications?

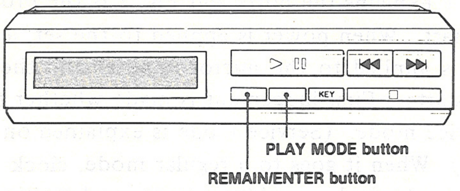


This appears if you continuously press the ▶▶| button at the end of the disc. To return to a TRACK indication, press the |◀◀ button.



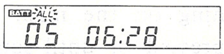
This appears if you continuously press the |◀◀ button at the beginning of the disc.

REPEAT PLAY



TO REPEAT THE WHOLE DISC —All repeat play

During play or pause, press the **PLAY MODE** button repeatedly until the **ALL** indicator appears on the display window.



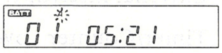
When the disc reaches the end of the last selection, the player will automatically go back to the beginning of the first selection, and play will restart.

To release, press the ■ button.

TO REPEAT PLAY BETWEEN TWO DESIGNATED POINTS —A←→B repeat play

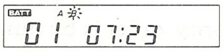
1 During play or pause, press the PLAY MODE button repeatedly until the A indicator appears on the display window.

blinks



2 Press the REMAIN/ENTER button to locate the starting point of the repeat play (point A) using the AMS or Search function.
Point a is memorized.

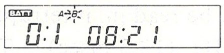
blinks



Point A is memorized.

3 Locate the stopping point (point B) and press the REMAIN/ENTER button.

stops blinking

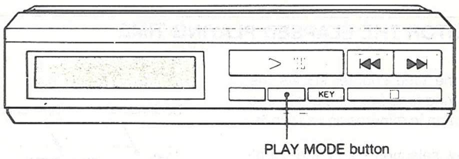


The disc goes back to point A and play starts.
If in pause mode press the ▶II button to start the play.

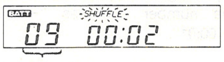
To release, press the ■ button.

To repeat only one selection
Memorize the beginning of the selection to be repeated as point A and the beginning of the next selection as point B.
Repeat play of the last selection of the disc cannot be done this way. Use the Search function (refer to "A ←→ B repeat play").

TO PLAY THE SELECTIONS IN A RANDOM ORDER —Shuffle repeat play*



During play or pause, press the **PLAY MODE** button repeatedly until the **SHUFFLE** indicator appears on the display window.
Shuffle play starts from the following selection.



To release, press the ■ button.

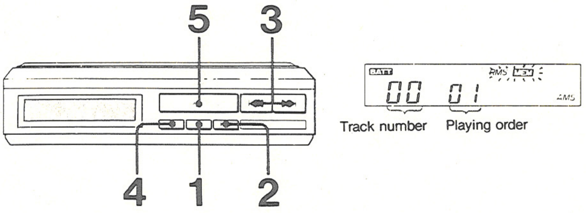
*In this mode, there is no way of knowing which selection will be played next. After all of the selections on the disc have been played in a random order, they are reshuffled.

AMS and Search operation during shuffle play

Operation / Indicator	Press ⏮	Press ⏭
AMS	Beginning of the selection being played *	Beginning of the following selection
SEARCH	Searches backwards *	Searches forward

*You cannot return to the previous selection. When the unit reaches the beginning of the selection being played, play starts automatically.

TO PLAY THE DESIRED SELECTIONS IN THE DESIRED ORDER —RMS play



1 During play or pause, press the PLAY MODE button repeatedly until the RMS MEM indicator appears on the display window.
The STEP/MIN indicator shows 01.

2 Press the KEY MODE button so that the AMS indicator appears.

3 Press the ⏮ or ⏭ button and locate the beginning of the desired selection by observing the TRACK indicator on the display.

4 Press the REMAIN/ENTER button.
The selection shown by the TRACK indicator is memorized as the first selection and the STEP/MIN indicator changes to 02.

Repeat steps 3 and 4 to memorize up to 15 other selections.

5 Press the ▶II button.
The selections are played in the memorized order.

To release, press the ■ button.

Notes

- When 16 selections have been memorized, the STEP/MIN indicator will return to 01. If you continue to memorize other selections, the previous selection memorized will be cleared and the new one memorized in its place.
- As the RMS searches for the next memorized selection very quickly, there may be little blank space between selections. When the selections played with the RMS feature are recorded on the tape, the AMS function of the cassette player may not be activated.

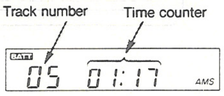
USING THE TIME COUNTER

Each time the REMAIN/ENTER button is pressed, the display shows the elapsed playing time or the remaining playing time.

TO MONITOR THE ELAPSED PLAYING TIME

Generally, the time counter shows the elapsed playing time from the beginning of the selection in minutes and seconds.

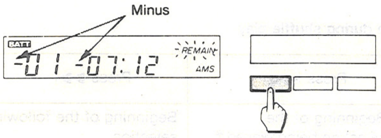
When a new selection starts, the counter is reset to "00:00" and then starts counting again.
If the selection has a blank space at its beginning, the counter is reset to negative number such as "– 00:02" or "– 00:01".



Shows 1 minute 17 seconds have elapsed from the beginning of the fifth selection.

TO MONITOR THE REMAINING PLAYING TIME

Press the REMAIN/ENTER button.
The counter shows the remaining number of selections and the remaining time, each preceded by a minus.



Shows 1 selection and 7 minutes and 12 seconds are remaining before the end of the disc.

Note: During repeat play and shuffle play the counter shows the remaining selections and time as if the player is in the normal playing mode, rather than those actuall remaining.

When the REMAIN/ENTER button is pressed during RMS play, "_ _ _ _" appears on the display.

SECTION 1
OUTLINE

1-1. CIRCUIT DESCRIPTION

[SYSTEM CONTROL 4-BIT MICROCOMPUTER]

Table 1 explains the ports and Fig. 7 is the program flor chart. When power is applied to the set, a $\overline{\text{RST}}$ signal is applied to the microcomputer and the program starts. First judgement is made whether to go to service mode. (Service mode is explained on page 7 – 9.) When it goes to a regular mode, clock oscillation is stopped, stand-by occurs, and waiting for $\overline{\text{PB/PAUSE}}$ input results. Clock oscillation is stopped for saving power consumption.

When the PB/PAUSE button is pressed, the program continues on to the main routine, and continues running on the main loop until the STOP button is pressed or until some kind of trouble causes emergency stop to be generated.

The SUB-Q signal is applied to the serial data input port (SI), WFCK to the shift clock input (SC) and SCOR to external interrupt input port ($\overline{\text{IRQ}}$), and SUB-Q is read into the RAM by the interrupt processing routine in the main loop.

The following are the three types of interrupt processing:

(1) External interrupt: by SCOR (75 Hz)

(2) Timer/Counter overflow interrupt: by built-in counter (50 Hz)

(3) Serial Buffer F/E (FULL/EMPTY) interrupt: executed when 4 bits of SUB-Q accumulate

Priority order is by number, in order from the lowest, and interrupt begins from high priority interrupt after the currently executed command is completed. On this set, first the loop turns at 50 Hz (20 msec) by interrupt (2) until servo is applied. Then when SUB-Q can be read in, interrupt (1) causes the loop to turn at 75 Hz (13.3 msec). Then SUB-Q 4 bit processing (sent from register to RAM) is performed at approximately 600 μsec cycles by interrupt (3).

The above is an outline of the program. The main program features are listed below.

(1) Focus search is done 3 times.

(2) For normal STOP, FOP is not stopped above the TOC area as before, but at music data area near the innermost circumference. For emergency stop due to OPEN or BATT EMP, it stops right away, where it is. During PLAY, the FOP searches for TOC and reads it, then begins playback.

(3) Search operation (music search) is done by performing 1 track jump three times in a row.

(4) Service program is built-in. (Refer to next chapter.)

(5) FZC (Focus Zero Cross) is only detected when the lens goes up.

Table 1 Pin Functions

Pin No.	Port Name	Signal Name	I/O	Function
1	R2	———	———	Not used.
2	R3	MUTE	OUTPUT	Muting signal output pin. CX23035 (IC601), LINE output and HEADPHONE output are muted mode at "H".
3	R0	$\overline{\text{BATT-E}}$	INPUT	Normal operation: Battery down signal input pin. When this pin goes "L", it detects running out of the battery. Service mode: This input pin switches the operation mode on the set. Goes from normal mode to service mode when $\overline{\text{RST}}$ input is supplied at "L".
4	R1	$\overline{\text{BATT-W}}$	INPUT	Battery voltage reduction input pin. When power supply voltage is less than 5.9 V, "L" is input
5	SC	WFCK	INPUT	Shift-clock input pin of serial I/O (SI). This is a clock signal to read SUB-Q signal. WFCK is input from CX23035 (IC601).
6	NC	———	———	Not used.
7	TC	CRCF	INPUT	This pin inputs the result of CRC of SUB-Q from CX23035 (IC601). and judges if there is no error in SUB-Q signal read at WFCK. "H": correct "L": error
8	S1	SUB-Q	INPUT	Serial I/O data input pin. SUB-Q signal (information about the music address and emphasis, etc.) is input.
9	R12	$\overline{\text{S-LIMIT}}$	INPUT	Limit switch (S801) input pin. When this pin inputs "L", detects FOP reaching the inner most circumference.
10	R13	$\overline{\text{S-OPEN}}$	INPUT	OPEN/CLOSE switch (S802) input pin. When this pin inputs "L", detects that the upper panel is open.
11	R14	$\overline{\text{STOP}}$	INPUT	■ switch input pin. This pin detects fall of input and goes to the set stand-by mode.
12	R15	$\overline{\text{FR}}$	INPUT	⏮ switch (S808) input pin.
13	K0	$\overline{\text{FF}}$	INPUT	⏭ switch (S807) input pin.
14	K1	$\overline{\text{PB/PAUSE}}$	INPUT	⏯ switch (S806) input pin.
15	K2	$\overline{\text{K-MODE}}$	INPUT	AMS/SEARCH switch (S805) input pin.
16	K3	$\overline{\text{REM/ENT}}$	INPUT	REM/ENT switch (S804) input pin.
17	R8	SENSE	INPUT	Input pin of SENSE output of CX23035 (IC601) and, CXA1023M (IC501). When fowarding serial data to CXA1023M, the signal which monitors the mode of the specified servo circuit is input.
18	R9	FOK	INPUT	Focus servo permission input pin. This pin detects the focus at "L".
19	R10	GFS	INPUT	Input pin of Guarded Frame Sync of CX23035 (IC601) "L" is input when CX23035 reads the data of the disc correctly.
20	S0	$\overline{\text{P-MODE}}$	INPUT	PLAY MODE switch (S803) input pin.

Pin No.	Port Name	Signal Name	I/O	Function
21	R4	LATCH	OUTPUT	When fowarding the serial data to CX23035 (IC601) and CXA1023M (IC501), LATCH signal is input.
22	R5	$\overline{\text{CLOCK}}$	OUTPUT	When fowarding the serial data to CX23035 (IC601) and CXA1023M (IC501), CLOCK signal is input.
23	R6	DATA	OUTPUT	Serial data output pin to CX23035 (IC601) and CXA1023M (IC501).
24	R7	$\overline{\text{DIRECT}}$	OUTPUT	Output pin to CXA1023M (IC501) at 1-track jump. Normally "H". The direction of jump level is reversed at "L". Next, normal tracking mode is set by going to "L". This pin outputs "L" for a limited time when detecting TZC (Tracking Zero Cross) rise or fall.
25	Vss	Vss	———	Ground pin
26	P2	———	———	Not used.
27	P3	$\overline{\text{RESET}}$	OUTPUT	CX23035 (IC601) and CXA1023M (IC501) reset signal output pin. Each IC is reset by outputting "L".
28	P1	MATT	OUTPUT	This output pin maintains inert motor rotation. This pin outputs "H" during the interval from motor begins turning to FOP focus.
29	R11	PEN	OUTPUT	Emphasis switching output pin of analog circuit. This pin outputs due to an emphasis signal in SUB-Q signal, and switches the analog circuit.
30	P0	$\overline{\text{P-CON}}$	OUTPUT	This output pin controls power ON/OFF. "L": Power ON "H": Power OFF
31 │ 50	SEG19 │ SEG0	SEG19 │ SEG0	OUTPUT	Segment output pin.
51 │ 54	COM3 │ COM1	COM3 │ COM1	OUTPUT	Common output pin (4 partition display).
55 │ 57	V0 V1 V2	V0 V1 V2	OUTPUT	Power supply pin for LCD bias.
58	Vcc	Vcc	———	Power supply pin.
59	$\overline{\text{VL}}$	$\overline{\text{VL}}$	OUTPUT	This control pin cuts off the current flowing to LCD bias resistor in stand-by mode.
60	XTAL	XTAL	OUTPUT	Output pin for clock generation circuit.
61	EXTAL	EXTAL	INPUT	Input pin for clock generation circuit.
62	$\overline{\text{RST}}$	$\overline{\text{RST}}$	INPUT	External reset signal input pin. This set is reset at "L".
63	START	START	INPUT	This pin cancels the stand-by mode on the set. The stand-by mode is canceled by rising (↑) of input.
64	$\overline{\text{IRQ}}$	$\overline{\text{SCOR}}$	INPUT	Interrupt input pin. SCOR (sync signal with SUB-Q) is input from CX23035 (IC601) and detects the tip of SUB-Q signal by detecting fall (↓) of input.

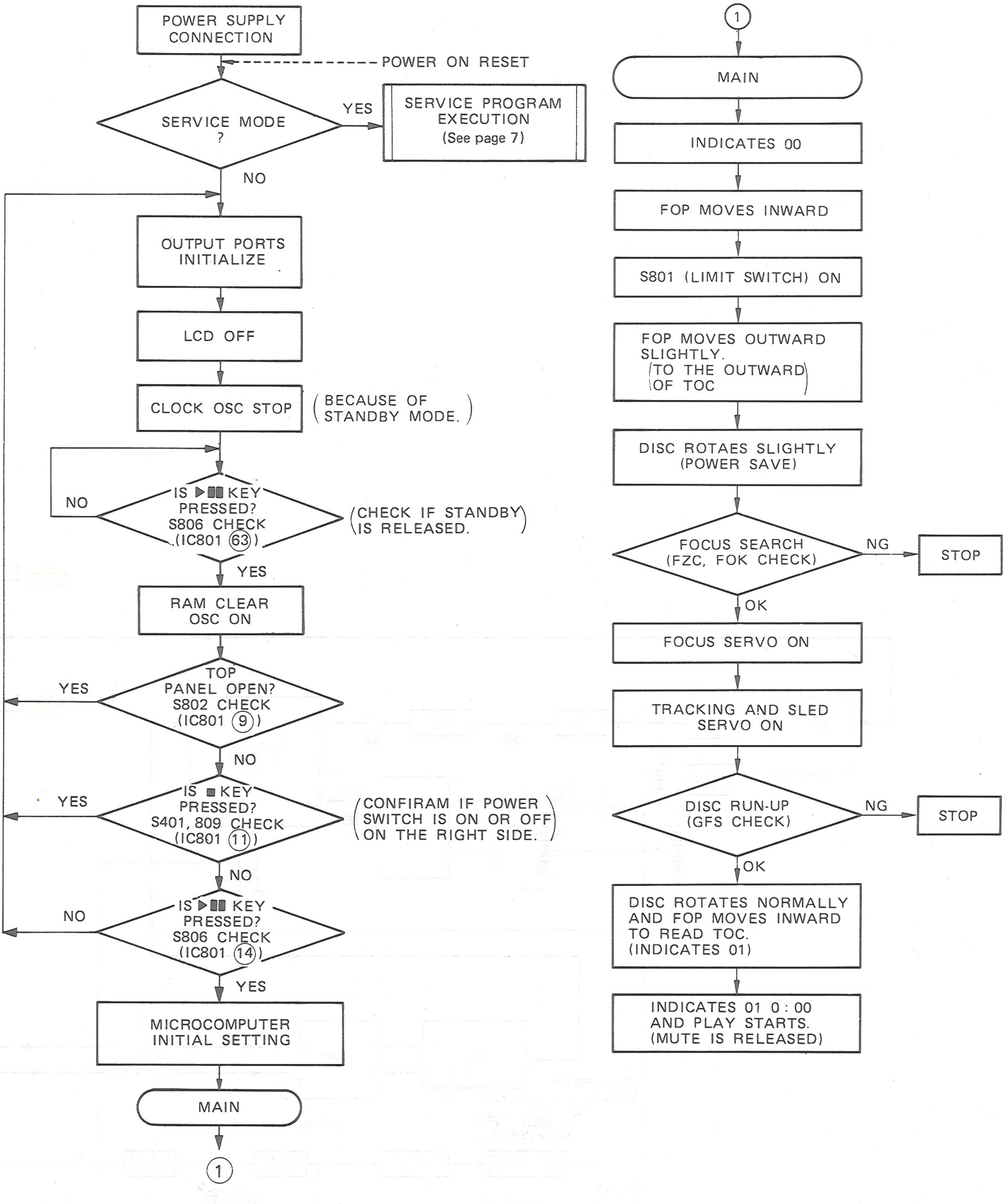
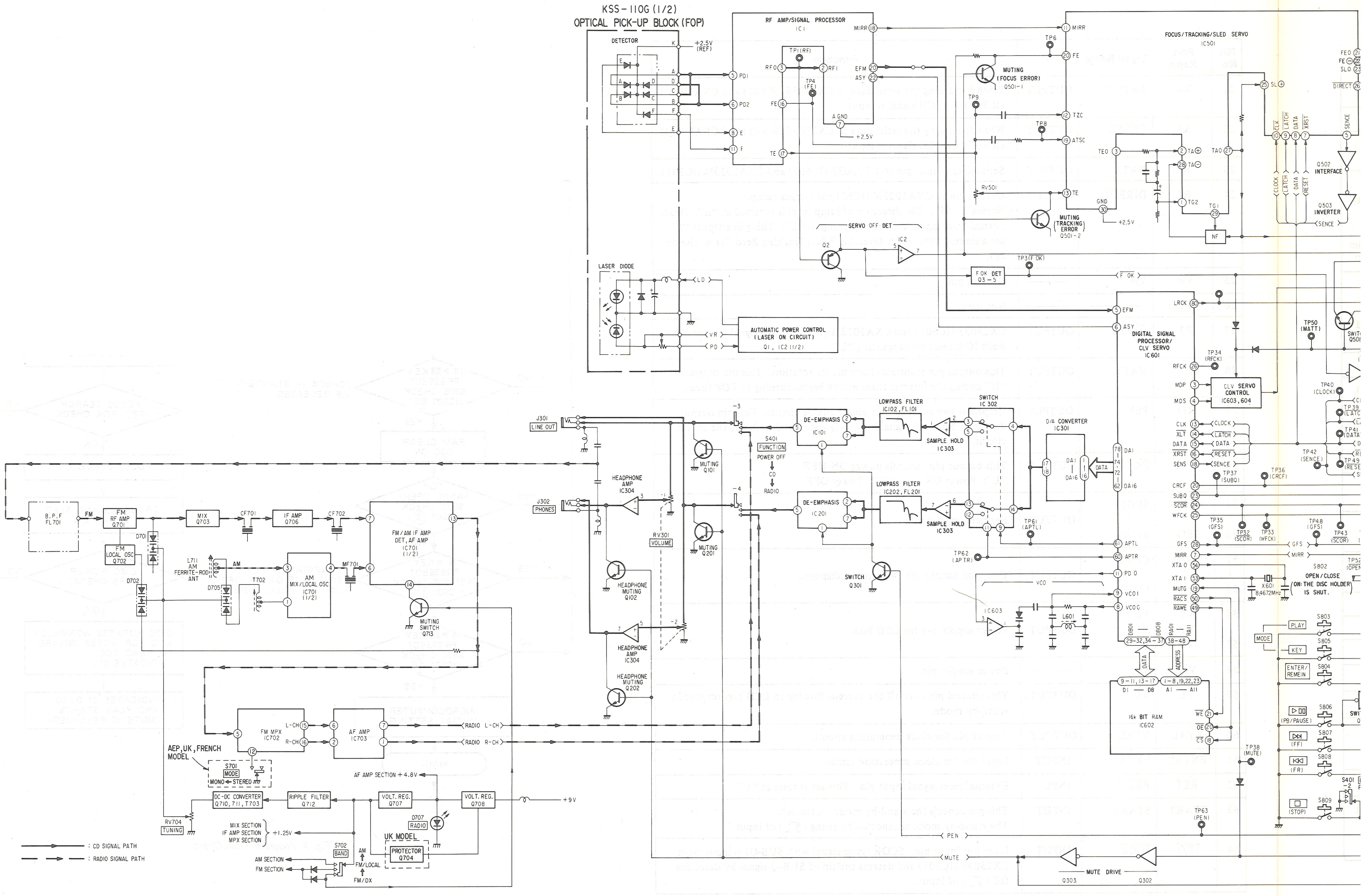
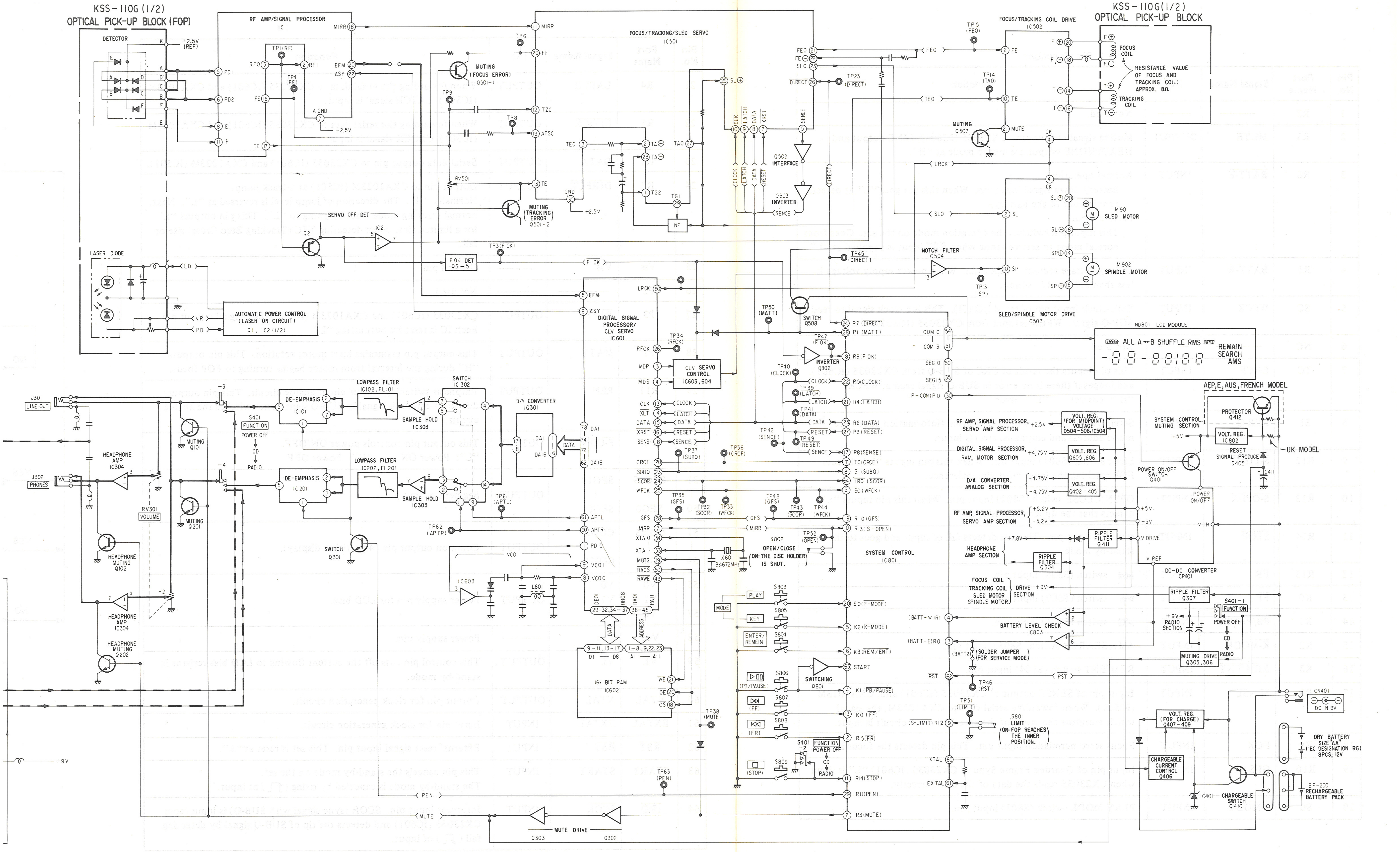

POWER SUPPLY CONNECTION
POWER ON RESET
SERVICE MODE ?
YES
SERVICE PROGRAM EXECUTION (See page 7)
NO
OUTPUT PORTS INITIALIZE
LCD OFF
CLOCK OSC STOP
(BECAUSE OF STANDBY MODE.)
NO
IS ▶❚❚ KEY PRESSED? S806 CHECK (IC801 ㊸)
(CHECK IF STANDBY IS RELEASED.)
YES
RAM CLEAR OSC ON
YES
TOP PANEL OPEN? S802 CHECK (IC801 ⑨)
NO
YES
IS ■ KEY PRESSED? S401, 809 CHECK (IC801 ⑪)
(CONFIRAM IF POWER SWITCH IS ON OR OFF ON THE RIGHT SIDE.)
NO
NO
IS ▶❚❚ KEY PRESSED? S806 CHECK (IC801 ⑭)
YES
MICROCOMPUTER INITIAL SETTING
MAIN
①
①
MAIN
INDICATES 00
FOP MOVES INWARD
S801 (LIMIT SWITCH) ON
FOP MOVES OUTWARD SLIGHTLY. (TO THE OUTWARD OF TOC)
DISC ROTAES SLIGHTLY (POWER SAVE)
FOCUS SEARCH (FZC, FOK CHECK)
NG
STOP
OK
FOCUS SERVO ON
TRACKING AND SLED SERVO ON
DISC RUN-UP (GFS CHECK)
NG
STOP
OK
DISC ROTATES NORMALLY AND FOP MOVES INWARD TO READ TOC. (INDICATES 01)
INDICATES 01 0 : 00 AND PLAY STARTS. (MUTE IS RELEASED)

Fig. 7 Program Flow Chart

1-2. BLOCK DIAGRAM


KSS-110G (1/2)
OPTICAL PICK-UP BLOCK (FOP)
DETECTOR
+2.5V (REF)
LASER DIODE
AUTOMATIC POWER CONTROL (LASER ON CIRCUIT)
Q1, IC2 (1/2)
LD
VR
PD
RF AMP/SIGNAL PROCESSOR
IC1
TP1 (RF)
TP4 (FE)
PD1
PD2
RFO
RFI
FE
TE
MIRR
EFM
ASY
A GND
+2.5V
FOCUS/TRACKING/SLED SERVO
IC501
TP6
TP8
TP9
TZC
ATSC
RV501
MUTING (FOCUS ERROR) Q501-1
MUTING (TRACKING ERROR) Q501-2
TEO
TA⊕
TA⊖
TG2
TG1
GND
TAO
NF
SL⊕
DIRECT
FEO
FE⊖
SLO
CLK
LATCH
DATA
XRST
SENCE
CLOCK
RESET
Q502 INTERFACE
Q503 INVERTER
SERVO OFF DET
Q2
IC2
TP3 (F OK)
F OK DET Q3-5
F OK
DIGITAL SIGNAL PROCESSOR/ CLV SERVO
IC601
LRCK
RFCK
MDP
MDS
TP34 (RFCK)
CLV SERVO CONTROL IC603, 604
TP50 (MATT)
TP40 (CLOCK)
TP39 (LATCH)
TP41 (DATA)
TP42 (SENCE)
TP49 (RESET)
TP36 (CRCF)
TP37 (SUBQ)
CRCF
SUBQ
SCOR
WFCK
TP35 (GFS)
TP32 (SCOR)
TP33 (WFCK)
TP48 (GFS)
TP43 (SCOR)
GFS
MIRR
XTA O
XTA I
MUTG
RACS
RAWE
X601 8.4672MHz
S802
OPEN/CLOSE (ON: THE DISC HOLDER IS SHUT.)
DA1
DA16
APTL
APTR
PD O
VCO1
VCO O
VCO
IC603
L601
DB01 — DB08
RA01 — RA11
29-32, 34-37
38-48
DATA
ADDRESS
9-11, 13-17
1-8, 19, 22, 23
D1 — D8
A1 — A11
16k BIT RAM
IC602
WE
OE
CS
TP38 (MUTE)
TP63 (PEN)
MODE
S803 PLAY
S805 KEY
S804 ENTER/REMEIN
S806 ▷/▯▯ (PB/PAUSE)
S807 ▷▷I (FF)
S808 I◁◁ (FR)
S809 □ (STOP)
S401-2
MUTE DRIVE
Q303
Q302
PEN
MUTE
J301 LINE OUT
J302 PHONES
MUTING Q101
MUTING Q201
HEADPHONE AMP IC304
HEADPHONE MUTING Q102
HEADPHONE MUTING Q202
RV301 VOLUME
S401 FUNCTION
POWER OFF
CD
RADIO
DE-EMPHASIS IC101
DE-EMPHASIS IC201
LOWPASS FILTER IC102, FL101
LOWPASS FILTER IC202, FL201
SAMPLE HOLD IC303
SWITCH IC302
D/A CONVERTER IC301
DATA
TP61 (APTL)
TP62 (APTR)
SWITCH Q301
B.P.F FL701
FM
FM RF AMP Q701
FM LOCAL OSC Q702
D701
D702
D705
MIX Q703
CF701
IF AMP Q706
CF702
FM/AM IF AMP DET, AF AMP IC701 (1/2)
L711 AM FERRITE-ROD ANT
AM
T702
AM MIX/LOCAL OSC IC701 (1/2)
MF701
MUTING SWITCH Q713
FM MPX IC702
L-CH
R-CH
AF AMP IC703
RADIO L-CH
RADIO R-CH
AEP, UK, FRENCH MODEL
S701 MODE
MONO ↔ STEREO
AF AMP SECTION +4.8V
DC-DC CONVERTER Q710, 711, T703
RIPPLE FILTER Q712
VOLT. REG. Q707
VOLT. REG. Q708
+9V
RV704 TUNING
MIX SECTION
IF AMP SECTION
MPX SECTION
+1.25V
D707 RADIO
UK MODEL
PROTECTOR Q704
S702 BAND
AM
FM/LOCAL
FM/DX
AM SECTION
FM SECTION
: CD SIGNAL PATH
: RADIO SIGNAL PATH

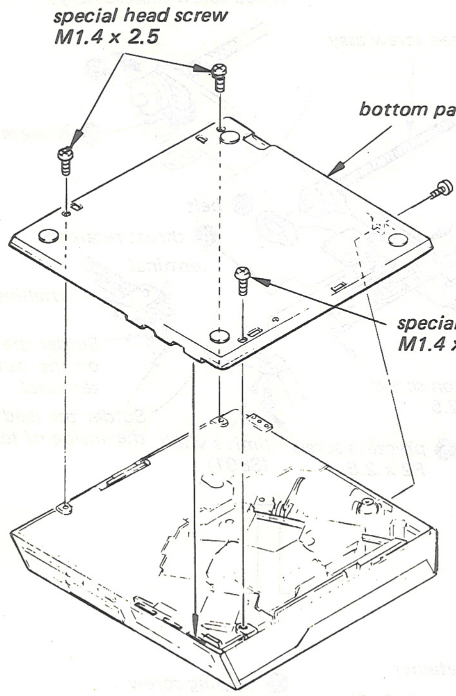

KSS-110G (1/2)
OPTICAL PICK-UP BLOCK (FOP)
DETECTOR
LASER DIODE
AUTOMATIC POWER CONTROL (LASER ON CIRCUIT) Q1, IC2 (1/2)
RF AMP/SIGNAL PROCESSOR IC1
TP1 (RF)
TP4 (FE)
TP9
TP8
TP6
RV501
MUTING (FOCUS ERROR) Q501-1
MUTING (TRACKING ERROR) Q501-2
SERVO OFF DET
Q2
IC2
TP3 (F OK)
F OK DET Q3-5
FOCUS/TRACKING/SLED SERVO IC501
Q502 INTERFACE
Q503 INVERTER
TP23 (DIRECT)
TP45 (DIRECT)
NOTCH FILTER IC504
TP13 (SP)
TP15 (FEO)
TP14 (TAO)
FOCUS/TRACKING COIL DRIVE IC502
KSS-110G (1/2)
OPTICAL PICK-UP BLOCK
FOCUS COIL
TRACKING COIL
RESISTANCE VALUE OF FOCUS AND TRACKING COIL: APPROX. 8Ω
MUTING Q507
SLED/SPINDLE MOTOR DRIVE IC503
M901 SLED MOTOR
M902 SPINDLE MOTOR
DIGITAL SIGNAL PROCESSOR/ CLV SERVO IC601
CLV SERVO CONTROL IC603, 604
TP34 (RFCK)
TP50 (MATT)
SWITCH Q508
TP47 (F OK)
INVERTER Q802
TP40 (CLOCK)
TP39 (LATCH)
TP41 (DATA)
TP42 (SENCE)
TP49 (RESET)
TP37 (SUBQ)
TP36 (CRCF)
TP35 (GFS)
TP32 (SCOR)
TP33 (WFCK)
TP48 (GFS)
TP43 (SCOR)
TP44 (WFCK)
TP52 (OPEN)
S802 OPEN/CLOSE (ON: THE DISC HOLDER IS SHUT.)
X601 8.4672MHz
VCO
IC603
L601
16k BIT RAM IC602
DATA
ADDRESS
TP38 (MUTE)
TP63 (PEN)
ND801 LCD MODULE
BATT ALL A↔B SHUFFLE RMS MEM REMAIN SEARCH AMS
SYSTEM CONTROL IC801
PLAY S803
MODE
KEY S805
ENTER/REMEIN S804
SWITCHING Q801
(PB/PAUSE) S806
(FF) S807
(FR) S808
S401-2 FUNCTION POWER OFF CD RADIO
(STOP) S809
TP46 (RST)
TP51 (LIMIT)
S801 LIMIT (ON: FOP REACHES THE INNER POSITION.)
(BATT2) SOLDER JUMPER FOR SERVICE MODE
BATTERY LEVEL CHECK IC803
RF AMP, SIGNAL PROCESSOR, SERVO AMP SECTION +2.5V
VOLT. REG. (FOR MIDPOINT VOLTAGE) Q504-506, IC504
DIGITAL SIGNAL PROCESSOR, RAM, MOTOR SECTION +4.75V
VOLT. REG. Q605, 606
D/A CONVERTER, ANALOG SECTION +4.75V -4.75V
VOLT. REG. Q402-405
RF AMP, SIGNAL PROCESSOR, SERVO AMP SECTION +5.2V -5.2V
HEADPHONE AMP SECTION +7.8V
RIPPLE FILTER Q304
RIPPLE FILTER Q411
FOCUS COIL TRACKING COIL SLED MOTOR SPINDLE MOTOR DRIVE SECTION +9V
RIPPLE FILTER Q307
+9V RADIO SECTION
S401-1 FUNCTION POWER OFF CD RADIO
MUTING DRIVE Q305, 306
AEP, E, AUS, FRENCH MODEL
PROTECTOR Q412
SYSTEM CONTROL, MUTING SECTION +5V
VOLT. REG. IC802
RESET SIGNAL PRODUCE D405
UK MODEL
POWER ON/OFF SWITCH Q401
DC-DC CONVERTER CP401
CN401 DC IN 9V
VOLT. REG. (FOR CHARGE) Q407-409
CHARGEABLE CURRENT CONTROL Q406
CHARGEABLE SWITCH Q410
DRY BATTERY SIZE "AA" (IEC DESIGNATION R6) 8PCS, 12V
BP-200 RECHARGEABLE BATTERY PACK
J301 LINE OUT
J302 PHONES
S401 FUNCTION POWER OFF CD RADIO
DE-EMPHASIS IC101
DE-EMPHASIS IC201
LOWPASS FILTER IC102, FL101
LOWPASS FILTER IC202, FL201
SAMPLE HOLD IC303
SWITCH IC302
D/A CONVERTER IC301
TP61 (APTL)
TP62 (APTR)
SWITCH Q301
MUTING Q101
MUTING Q201
HEADPHONE AMP IC304
RV301 VOLUME
HEADPHONE MUTING Q102
HEADPHONE MUTING Q202
MUTE DRIVE Q303 Q302
PEN
MUTE
+9V

SECTION 2
DISASSEMBLY AND REASSEMBLY

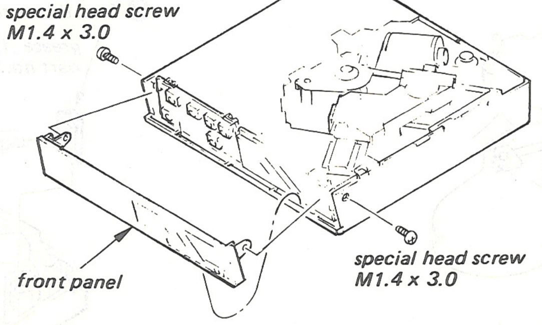
Note: Follow the disassembly procedure in the numerical order given.

2-1. DISASSEMBLY

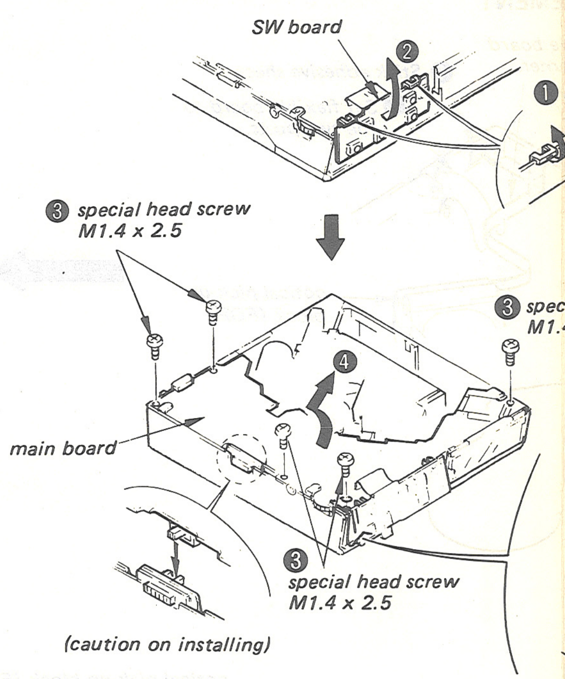
BOTTOM PANEL


special head screw
M1.4 x 2.5
bottom panel
special head screw
M1.4 x 2.5
special head screw
M1.4 x 2.5

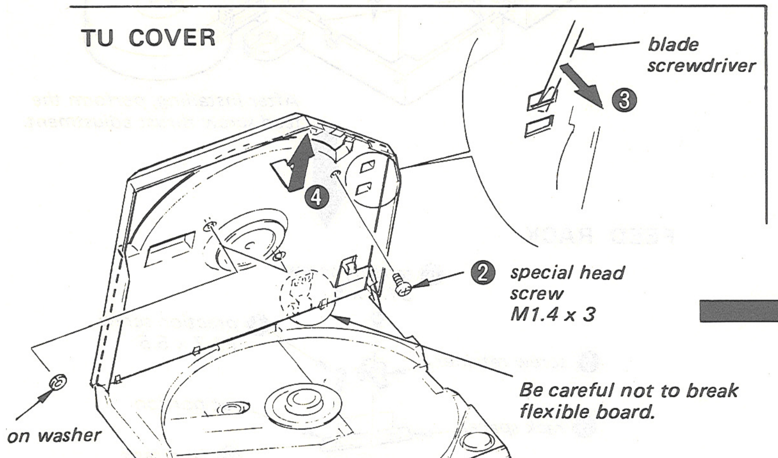
FRONT PANEL


special head screw
M1.4 x 3.0
front panel
special head screw
M1.4 x 3.0

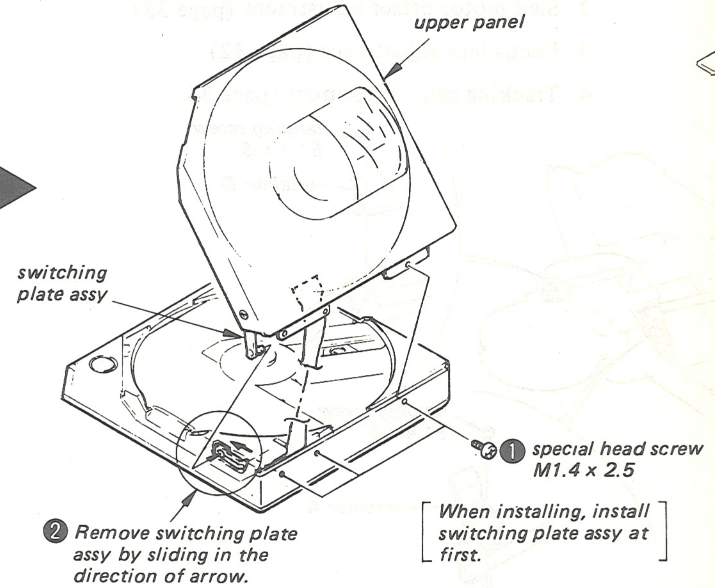
MAIN BOARD AND SW BOARD


SW board
②
① Remove the claw.
③ special head screw
M1.4 x 2.5
④
main board
③ special head screw
M1.4 x 2.5
③ special head screw
M1.4 x 2.5
(caution on installing)

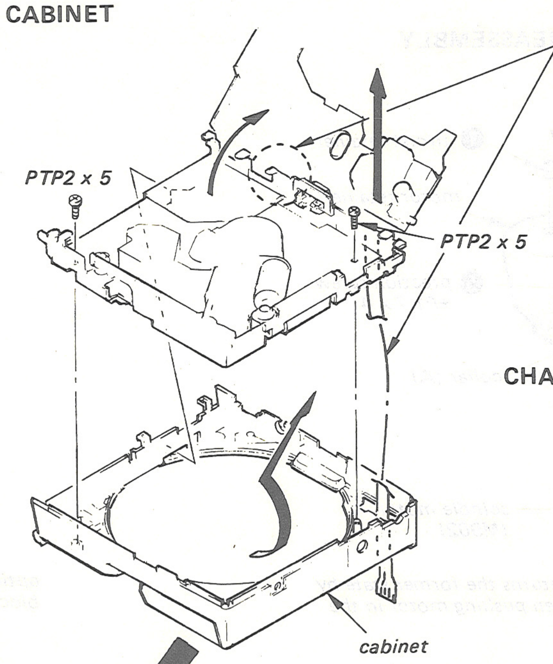
TU COVER


blade
screwdriver
③
④
② special head
screw
M1.4 x 3
Be careful not to break
flexible board.
on washer

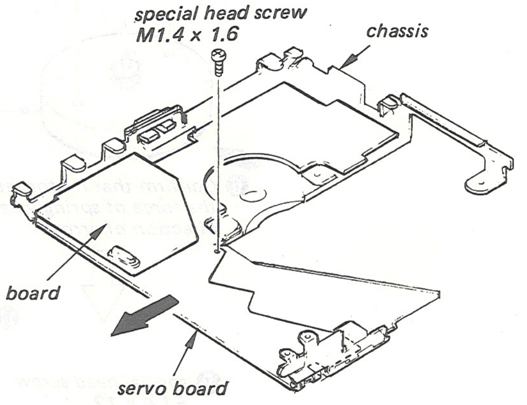
UPPER PANEL


upper panel
switching
plate assy
① special head screw
M1.4 x 2.5
② Remove switching plate
assy by sliding in the
direction of arrow.
When installing, install
switching plate assy at
first.

CABINET

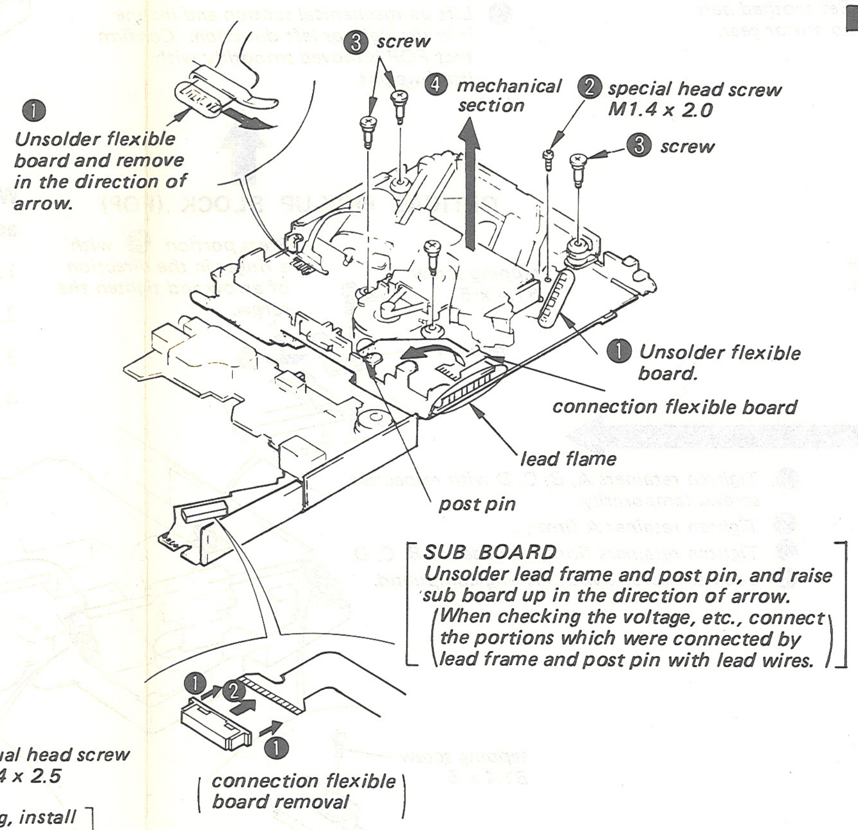

Be careful not
to break flexible
board.
PTP2 x 5
PTP2 x 5
cabinet

CHASSIS


special head screw
M1.4 x 1.6
chassis
sub board
servo board

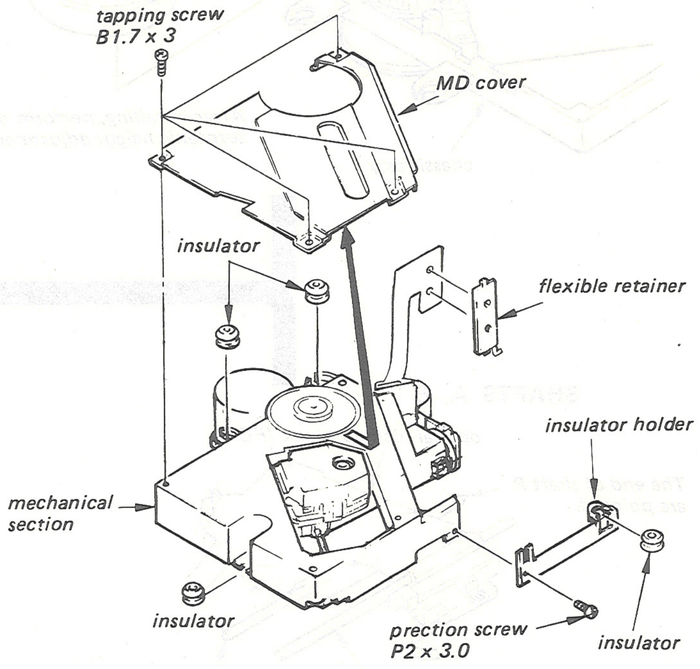
MECHANICAL SECTION

Note: Be careful not to break flexible board.
If it is broken, FOP should be replaced.


③ screw
④ mechanical
section
② special head screw
M1.4 x 2.0
③ screw
①
Unsolder flexible
board and remove
in the direction of
arrow.
① Unsolder flexible
board.
connection flexible board
lead flame
post pin
①
②
①
connection flexible
board removal

SUB BOARD
Unsolder lead frame and post pin, and raise sub board up in the direction of arrow.
(When checking the voltage, etc., connect the portions which were connected by lead frame and post pin with lead wires.)

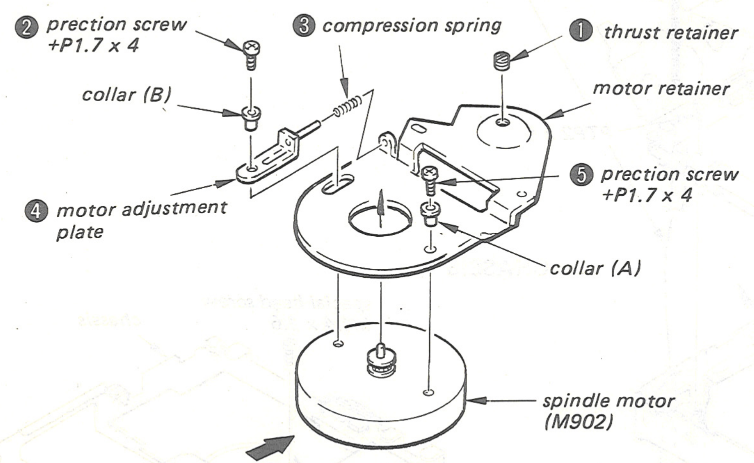
MD COVER AND INSULATOR


tapping screw
B1.7 x 3
MD cover
insulator
flexible retainer
insulator holder
mechanical
section
insulator
prection screw
P2 x 3.0
insulator

Refer to NOTE ON HADLING THE OPTICAL PICK-UP BLOCK (KSS-110G) on page 3.

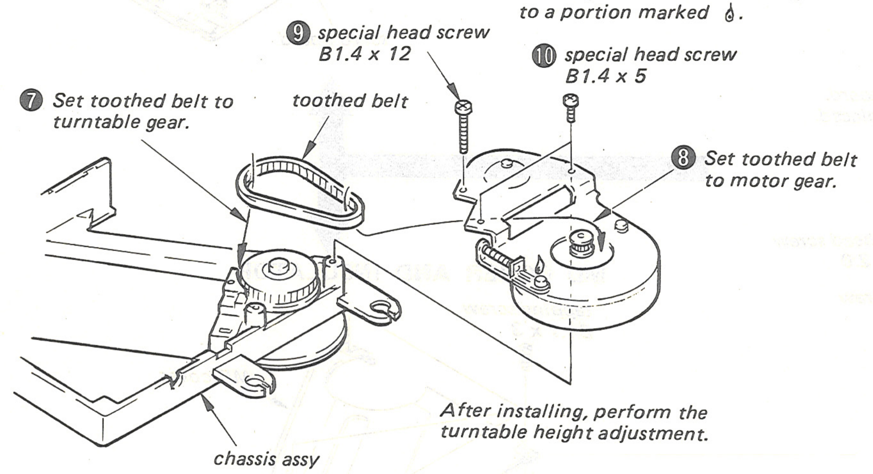
2-2. MECHANICAL SECTION REASSEMBLY

SPINDLE MOTOR SECTION


② prection screw +P1.7 x 4
③ compression spring
① thrust retainer
collar (B)
motor retainer
⑤ prection screw +P1.7 x 4
④ motor adjustment plate
collar (A)
spindle motor (M902)

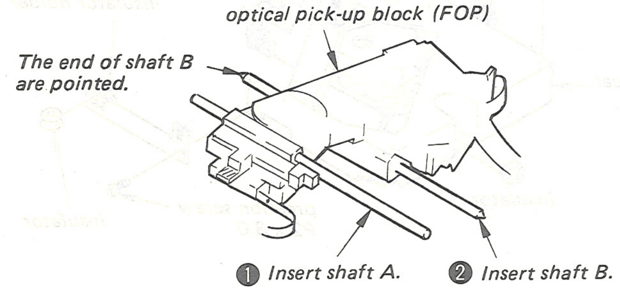
⑥ Confirm that motor returns the former state by the force of spring when pushing motor in the direction of arrow.

⑪ Apply a drop of hidro fluid EP-56 (part no. 7-661-018-01) to a portion marked 💧.

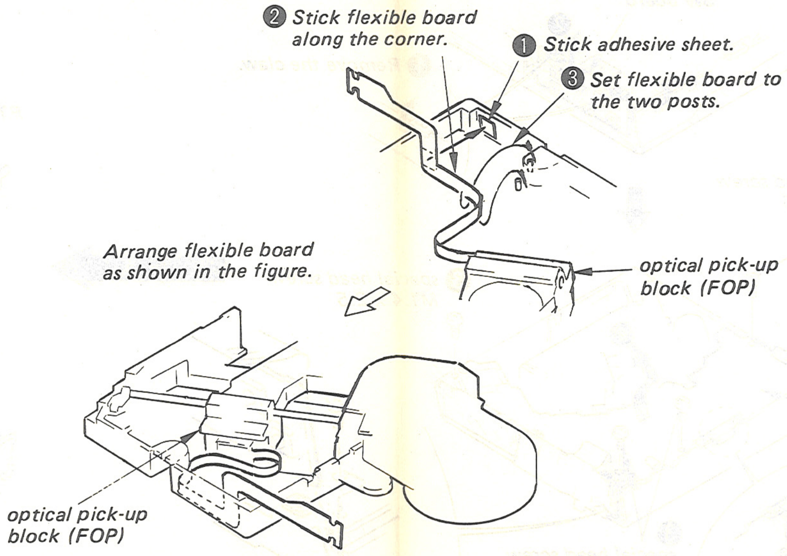

⑨ special head screw B1.4 x 12
⑩ special head screw B1.4 x 5
⑦ Set toothed belt to turntable gear.
toothed belt
⑧ Set toothed belt to motor gear.
chassis assy

After installing, perform the turntable height adjustment.

SHAFTS A, B

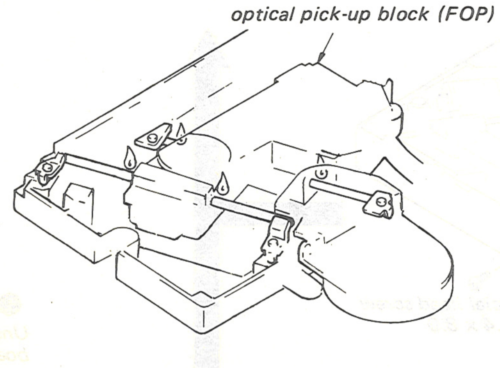

optical pick-up block (FOP)
The end of shaft B are pointed.
① Insert shaft A.
② Insert shaft B.

FLEXIBLE BOARD ARRANGEMENT

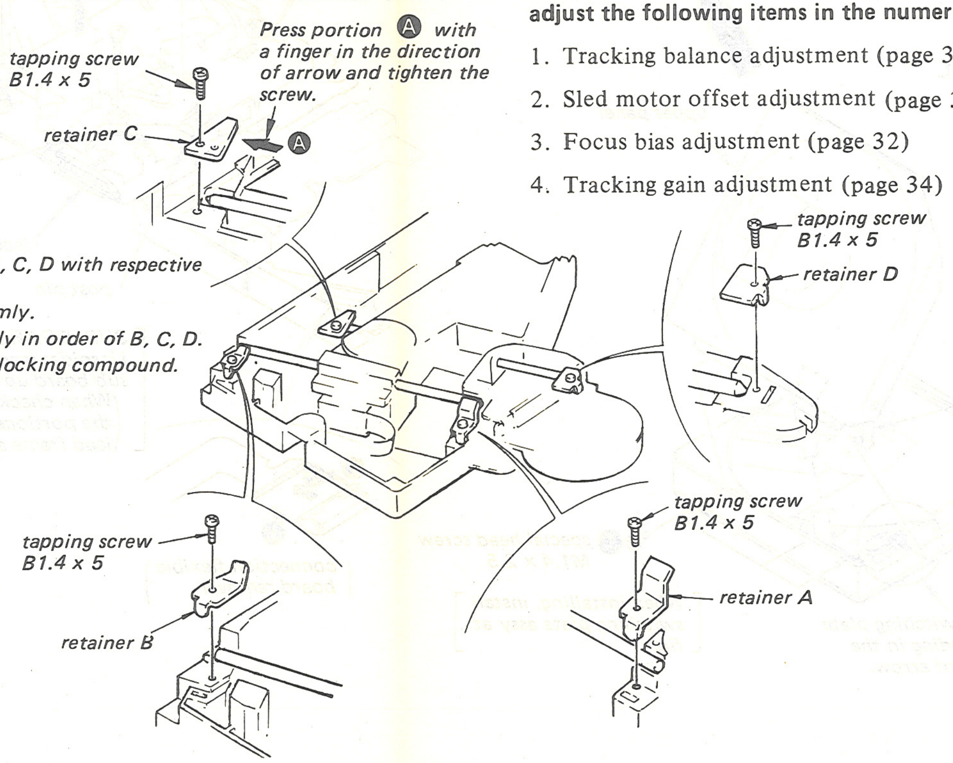

② Stick flexible board along the corner.
① Stick adhesive sheet.
③ Set flexible board to the two posts.
optical pick-up block (FOP)
Arrange flexible board as shown in the figure.
optical pick-up block (FOP)

OIL SUPPLY OF SHAFTS A, B

1. Apply a drop of hydro fluid EP-56 (part no. 7-661-018-01) to four portions marked 💧.
2. Move FOP right and left two or three times to smooth them.
3. Lift up mechanical section and incline it in the right or left direction. Confirm that FOP is moved smoothly with itself-weight.


optical pick-up block (FOP)

OPTICAL PICK-UP BLOCK (FOP)


tapping screw B1.4 x 5
retainer C
Press portion Ⓐ with a finger in the direction of arrow and tighten the screw.
tapping screw B1.4 x 5
retainer D
tapping screw B1.4 x 5
retainer B
tapping screw B1.4 x 5
retainer A

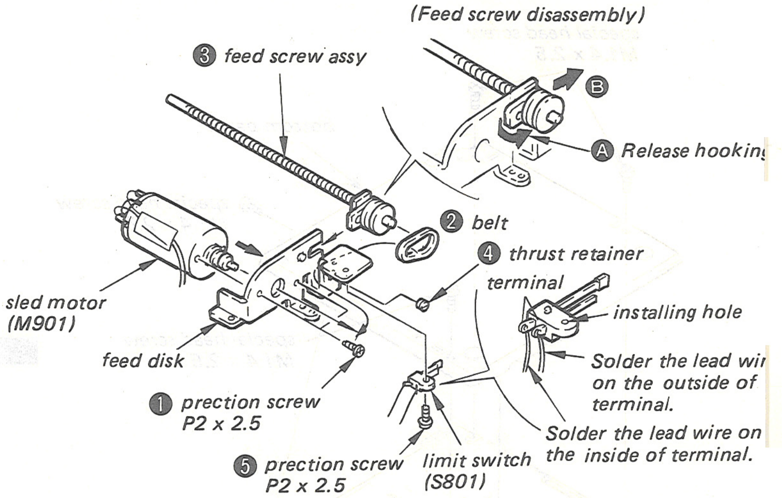
1. Tighten retainers A, B, C, D with respective screws temporarily.
2. Tighten retainer A firmly.
3. Tighten retainers firmly in order of B, C, D.
4. Lock the screws with locking compound.

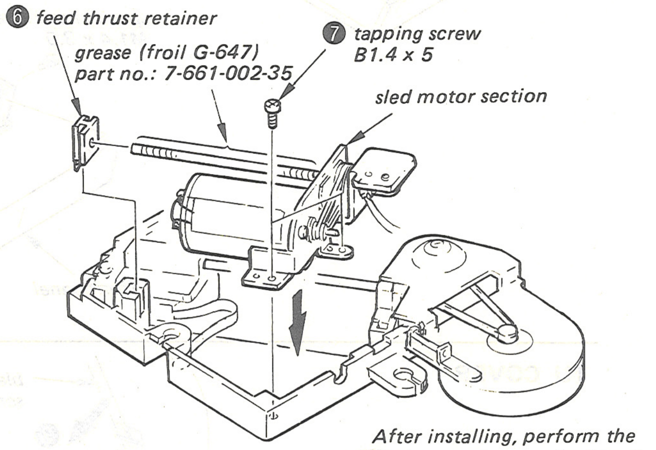
When replacing optical pick-up block, confirm and adjust the following items in the numerical order given.

1. Tracking balance adjustment (page 33)
2. Sled motor offset adjustment (page 33)
3. Focus bias adjustment (page 32)
4. Tracking gain adjustment (page 34)

Refer to NOTE ON HADLING THE OPTICAL PICK-UP BLOCK (KSS-110G) on page 3.

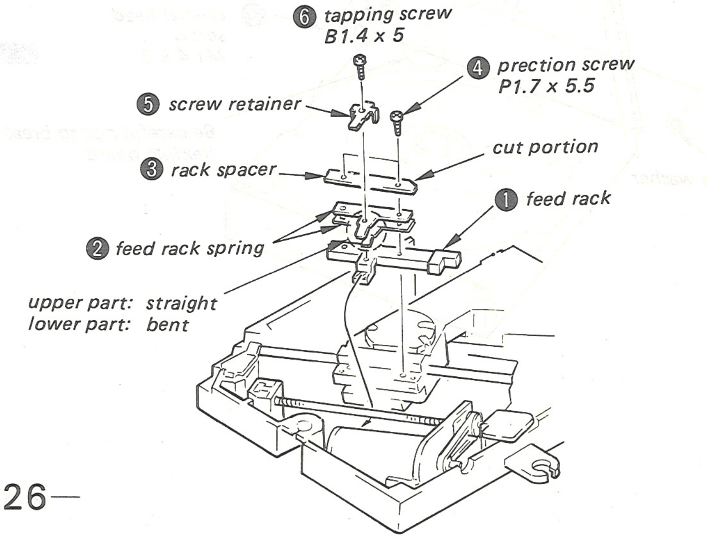
SLED MOTOR SECTION


(Feed screw disassembly)
③ feed screw assy
Ⓑ
Ⓐ Release hookin
② belt
④ thrust retainer
terminal
installing hole
sled motor (M901)
feed disk
Solder the lead wi on the outside of terminal.
① prection screw P2 x 2.5
Solder the lead wire on the inside of terminal.
⑤ prection screw P2 x 2.5
limit switch (S801)


⑥ feed thrust retainer
grease (froil G-647) part no.: 7-661-002-35
⑦ tapping screw B1.4 x 5
sled motor section

After installing, perform the feed screw thrust adjustment.

FEED RACK


⑥ tapping screw B1.4 x 5
④ prection screw P1.7 x 5.5
⑤ screw retainer
cut portion
③ rack spacer
① feed rack
② feed rack spring
upper part: straight
lower part: bent

2-3. OPTICAL PICK-UP BLOCK (FOP) REPLACEMENT

Optical pick-up block (FOP) can be repaired without removing mechanical section the replacing method is explained below.

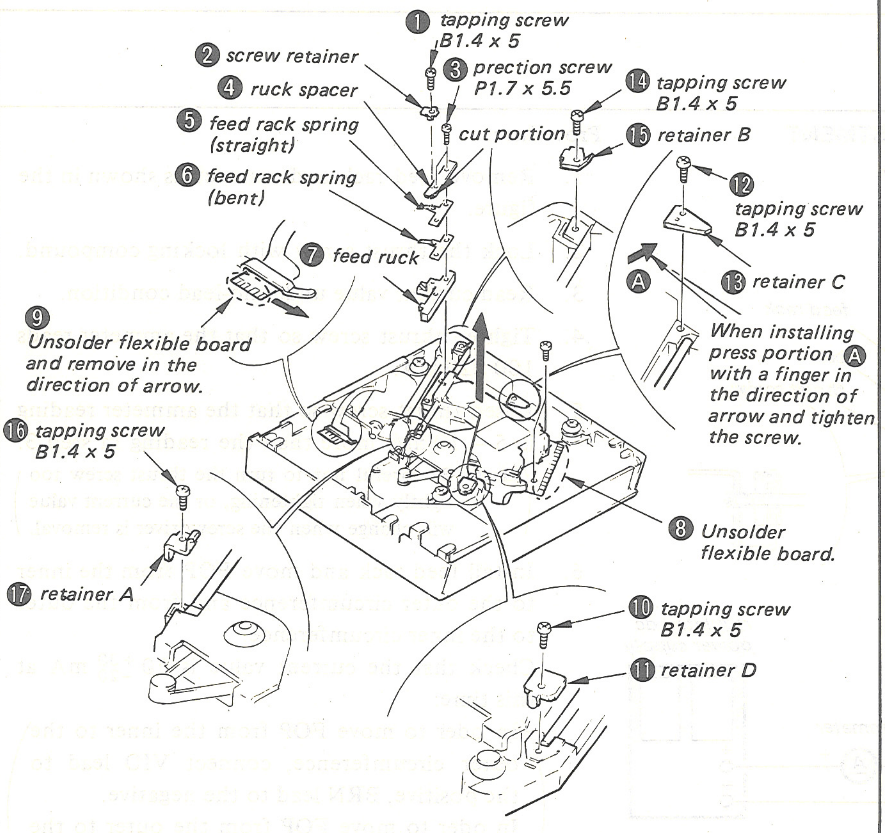
Disassembly:

Remove bottom panel.
(See page 23.)

Remove front panel.
(See page 23.)

Remove main board and SW board.
(See page 23.)

Remove optical pick-up block (FOP)



① tapping screw B1.4 x 5
② screw retainer
③ prection screw P1.7 x 5.5
④ ruck spacer
⑤ feed rack spring (straight)
⑥ feed rack spring (bent)
⑦ feed ruck
⑧ Unsolder flexible board.
⑨ Unsolder flexible board and remove in the direction of arrow.
⑩ tapping screw B1.4 x 5
⑪ retainer D
⑫ tapping screw B1.4 x 5
⑬ retainer C
⑭ tapping screw B1.4 x 5
⑮ retainer B
⑯ tapping screw B1.4 x 5
⑰ retainer A
cut portion
Ⓐ
When installing press portion Ⓐ with a finger in the direction of arrow and tighten the screw.

Remove shafts A, B from optical pick-up block (FOP). (See page 25 "MECHANICAL SECTION REASSEMBLY.)

Installation:

Insert shafts A, B to optical pick-up block (FOP). (See page 25.)

Install optical pick-up block (FOP).
(Installing procedure is opposite to disassembly procedure indicated in the light figure.)

Note:

- Arrange flexible board before installing retainers A, B, C, D. (See page 25.)
- Oil shafts A, B. (See page 25.)

Install main board and SW board.

Install front panel.

Install bottom panel.

SECTION 3
ADJUSTMENTS

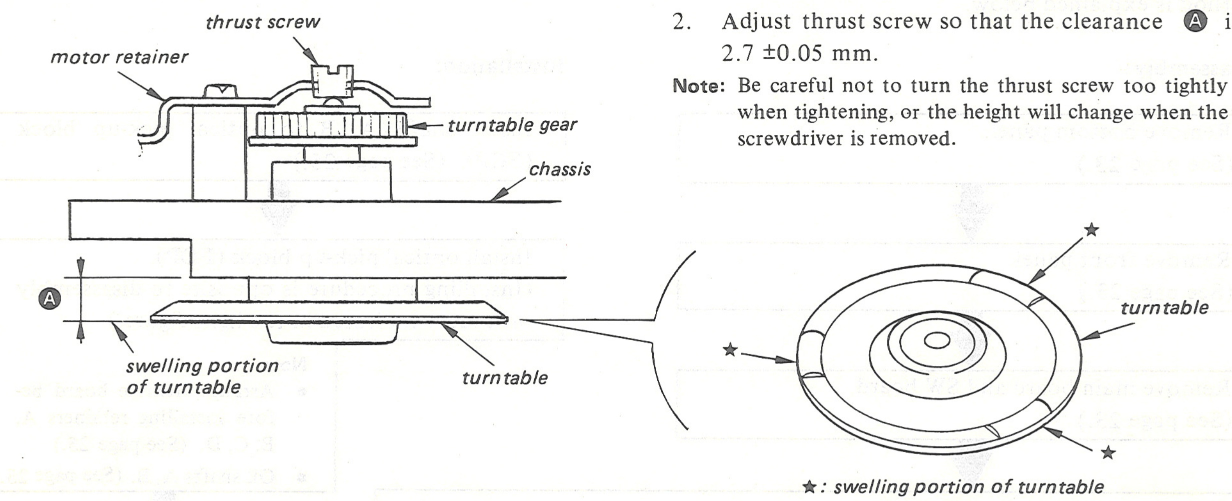
3-1. MECHANICAL ADJUSTMENTS

TURNTABLE HEIGHT ADJUSTMENT

Procedure:

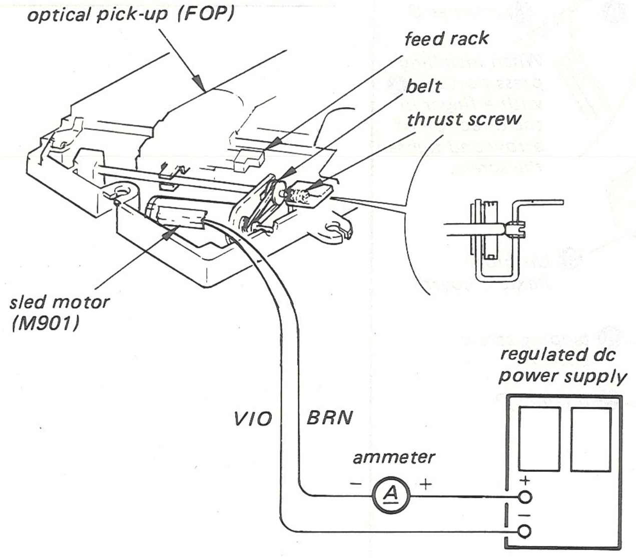
1. Lock the thrust screw with locking compound.
2. Adjust thrust screw so that the clearance Ⓐ is 2.7 ±0.05 mm.

Note: Be careful not to turn the thrust screw too tightly when tightening, or the height will change when the screwdriver is removed.


thrust screw
motor retainer
turntable gear
chassis
Ⓐ
swelling portion of turntable
turntable
★
turntable
★
★
★: swelling portion of turntable

FEED SCREW THRUST ADJUSTMENT

Power supply voltage: 2.5 ±0.1 V


optical pick-up (FOP)
feed rack
belt
thrust screw
sled motor (M901)
regulated dc power supply
VIO
BRN
ammeter
−
Ⓐ
+
+
−

Procedure:

1. Remove feed rack and connect as shown in the figure.
2. Lock the thrust screw with locking compound.
3. Read current value under no-lead condition.
4. Tighten thrust screw so that the ammeter reads 100 ±20 mA.
5. Losen thrust screw so that the ammeter reading is 5 – 10 mA more than the reading in step 3.

   (**Note:** Be careful not to turn the thrust screw too tightly when tightening, or the current value will change when the screwdriver is removal.)

6. Install feed rack and move FOP from the inner to the outer circumference and from the outer to the inner circumference.

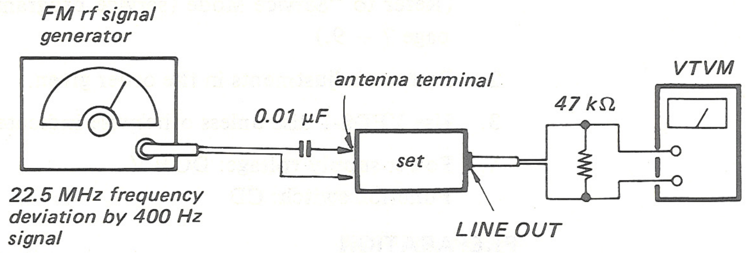
   Check that the current value is 70^{+30}_{-20} mA at this time.

   (In oder to move FOP from the inner to the outer circumference, connect VIO lead to the positive, BRN lead to the negative.
   In oder to move FOP from the outer to the inner circumference, connect BRN lead to the positive, VIO lead to the negative.)

3-2. ELECTRICAL ADJUSTMENT

FM SECTION

- Function switch: RADIO
- Band switch: FM


FM rf signal generator
antenna terminal
0.01 μF
set
47 kΩ
VTVM
LINE OUT
22.5 MHz frequency deviation by 400 Hz signal

- Repeat the procedures in each adjustment several times, and the frequency coverage adjustment should be finally done by the trimmer capacitors.

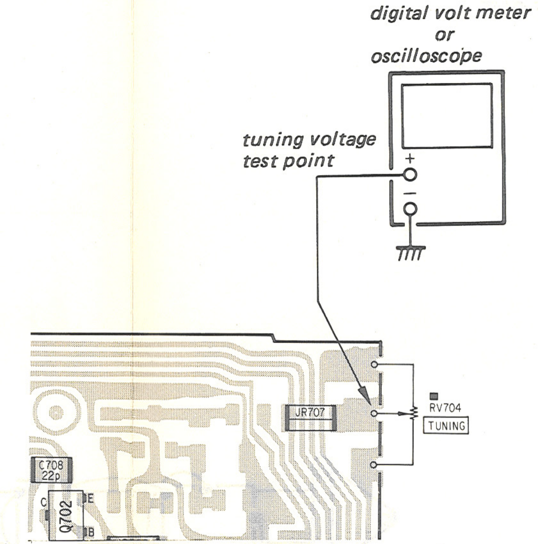
- This adjustment should be mode after TUNING VOLTAGE ADJUSTMENT.

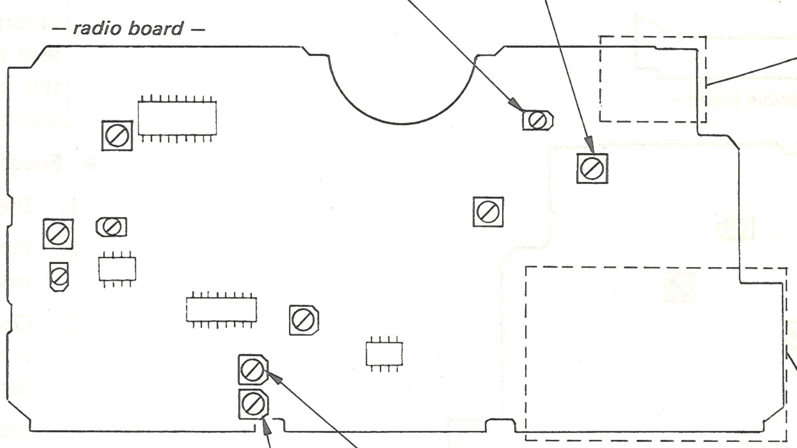
FM FREQUENCY COVERAGE ADJUSTMENT

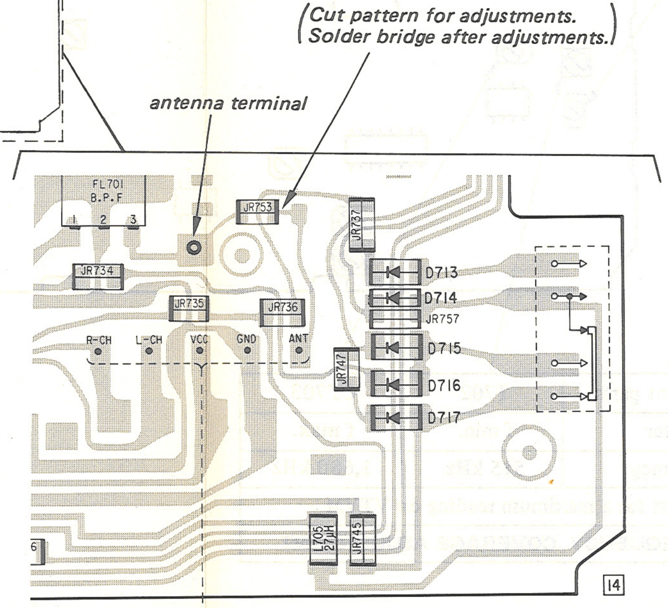
Adjust for a maximum reading on VTVM.

SG frequency	109.5 MHz (107.8 MHz)	85.5 MHz (87.35 MHz)
Dial pointer	f max.	f min.
Adjustment parts	CT701	L702

( ): G-AEP model


digital volt meter
or
oscilloscope
tuning voltage
test point
+
−
JR707
RV704
TUNING
C708
22p
Q702
C
E
B


– radio board –

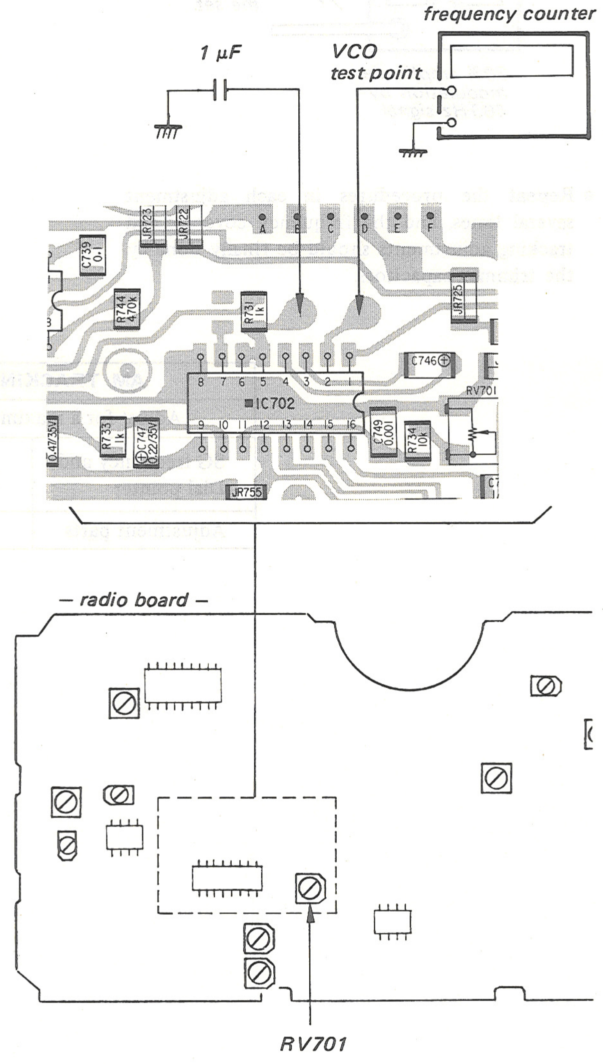

(Cut pattern for adjustments.
Solder bridge after adjustments.)
antenna terminal
FL701
B.P.F
1
2
3
JR753
JR737
JR734
JR735
JR736
R-CH
L-CH
VCC
GND
ANT
D713
D714
JR757
D715
JR747
D716
D717
L705
27μH
JR745
14

Adjustment parts	RV703	RV702
Dial pointer	f min.	f max.
Reading on digital volt meter or oscilloscope	1 V	9 V

TUNING VOLTAGE ADJUSTMENT

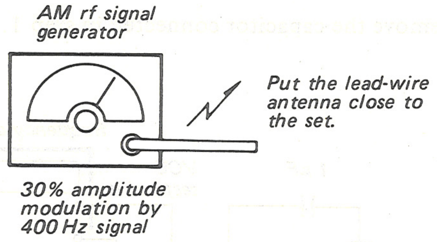
VCO ADJUSTMENT

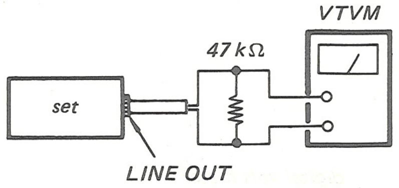
1. Connect a 1 μF capacitor as follows.
2. Adjust RV701 for 19 ±0.02 kHz on the frequency counter.
3. Remove the capacitor connected in step 1.


frequency counter
1 μF
VCO
test point
JR723
JR722
A
B
C
D
E
F
C739
0.1
R744
470k
R731
1k
JR725
C746
RV701
IC702
C747
0.22/35V
R733
1k
C749
0.001
R734
10k
0.47/35V
JR755
– radio board –
RV701

AM SECTION

- Function switch: RADIO
- Band switch: AM


AM rf signal generator
Put the lead-wire antenna close to the set.
30% amplitude modulation by 400 Hz signal

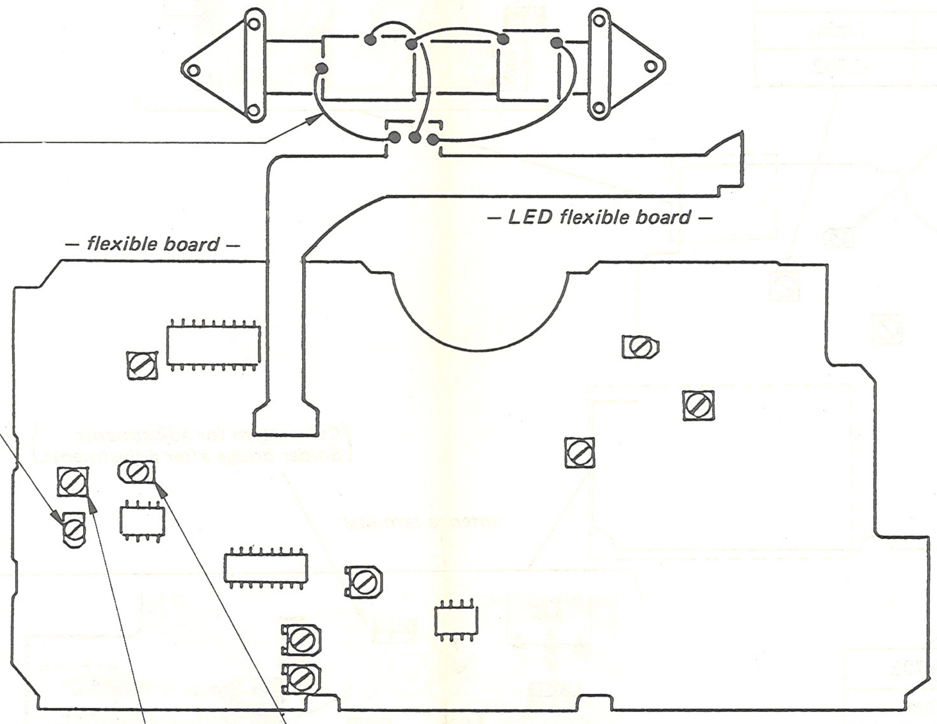


- Repeat the procedures in each adjustment several times, and the frequency coverage and tracking adjustments should be finally done by the trimmer capacitors.

AM TRACKING ADJUSTMENT

Adjust for a maximum reading on VTVM.

SG frequency and Dial pointer	1,400 kHz	620 kHz
Adjustment parts	CT704	L711



Adjustment parts	T702	CT703
Dial Pointer	f min.	f max.
SG frequency	515 kHz	1,680 kHz

Adjust for a maximum reading on VTVM.

AM FREQUENCY COVERAGE ADJUSTMENT

CD SECTION

Notes on Adjustment

1. Perform adjustments in service mode.
   Be sure to release service mode after completing adjustment.
   (Refer to "Service Mode (service program)" on page 7 – 9.)
2. Perform adjustments in the order given.
3. Use YEDS-1 disc unless otherwise indicated.
4. Power supply voltage: DC 9 V
   Function switch: CD

PREPARATION

Put the set into service mode (see page 7 – 9) and perform the following checks. Repair if there are any abnormalities.

- **Sled Motor Check**

1. Press the OPEN button and open the top panel.
2. Press the ▶▶|, |◀◀ keys and make sure that the FOP moves smoothly, without catching, from the inmost → outmost → inmost circumference.
   ▶▶|: FOP moves outward
   |◀◀: FOP moves inward

[If FOP moves to innermost circumference or outermost circumference, the feed screw assy and feed rack may stick together and stopmoving. If this occurs, move pulley section of feed screw assy by hand to move FOP.]

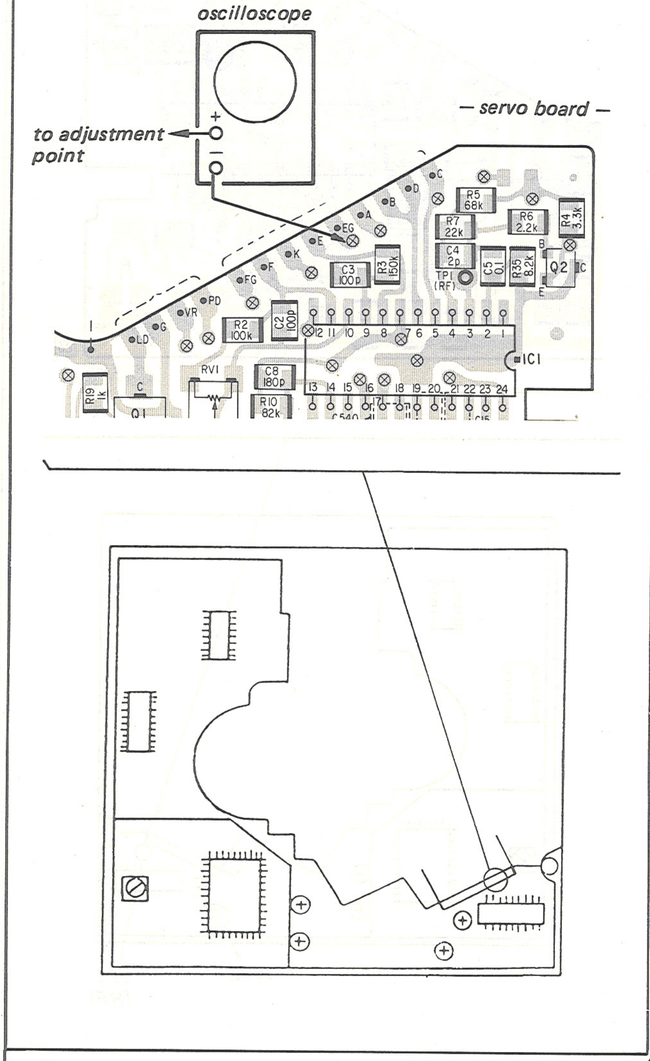
- **Focus Search Check**

1. Press the OPEN button and open the top panel.
2. Press the ▶❚❚ key. (Focus search is performed continuously. Laser does not emit.)
3. Observe the FOP objective lens and check that it moves smoothly up and down with no catching or noises.
4. Press the ■ key.
   Check that focus search operation stops. If it does not, press the ■ key again, longer.

- **2.5 V (REF) Connecting Point**

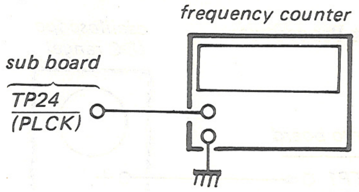
FOCUS BIAS ADJUSTMENT
TRACKING BALANCE ADJUSTMENT
SLED MOTOR OFFSET CHECK AND ADJUSTMENT
TRACKING GAIN ADJUSTMENT

When the adjustments above are performed, connect the ⊖ side of oscilloscope to the point below.


oscilloscope
to adjustment point
+
−
— servo board —
R5 68k
R7 22k
R6 2.2k
R4 3.3k
C4 2p
C5 0.1
R35 8.2k
Q2
R3 150k
C3 100p
TP1 (RF)
R2 100k
C2 100p
C8 180p
R10 82k
R19 1k
RV1
Q1
IC1
A
B
C
D
E
EG
F
FG
K
PD
VR
G
LD
I

PLL FREE RUN FREQUENCY CHECK AND ADJUSTMENT

Check/Adjustment Procedure

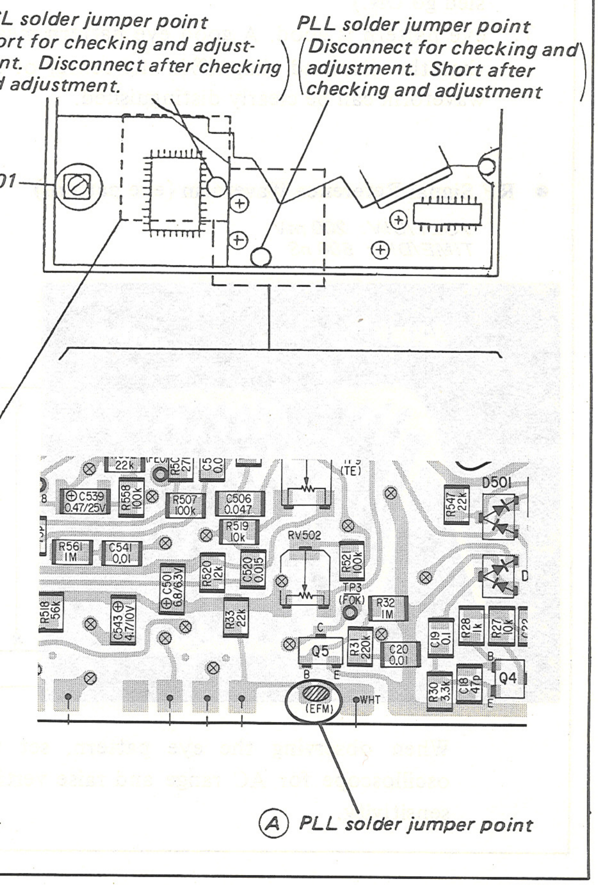

frequency counter
sub board
TP24
(PLCK)

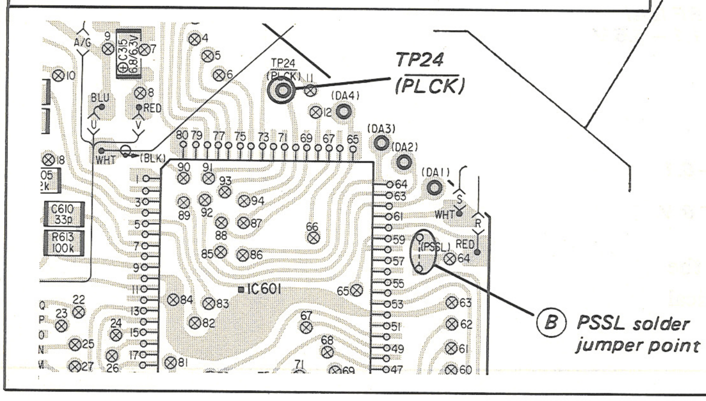
1. Disconnect the jumper point Ⓐ (PLL) in the diagram below.
2. Short the jumper point Ⓑ (PSSL) in the diagram below.
3. Connect a frequency counter to sub board test point TP24 $\overline{\text{(PLCK)}}$.
4. Put the set into service mode (see page 7 – 9).
5. Check that the frequency counter reading is 4.29 ±0.04 MHz. If not, adjust L601 so that it is 4.29 ±0.01 MHz.
6. After adjustment, release service mode (see page 7 – 9).
7. Short the jumper point shorted in step 1.
8. Disconnect the jumper point disconnected in step 2.

Check/Adjustment Location: servo board, sub board

PSSL solder jumper point (*Short for checking and adjustment. Disconnect after checking and adjustment.*)

PLL solder jumper point (*Disconnect for checking and adjustment. Short after checking and adjustment*)


L601
R558 100k
C539 0.47/25V
R507 100k
C506 0.047
R519 10k
RV502
R561 1M
C541 0.01
C501 6.8/6.3V
R520 12k
C520 0.015
R521 100k
TP3 (FOK)
R32 1M
R518 56k
C543 4.7/10V
R33 22k
Q5
R31 220k
C20 0.01
C19 0.1
R28 1k
R27 10k
R547 22k
D501
Q4
R30 3.3k
C18 47p
(EFM)
WHT
(TE)
Ⓐ PLL solder jumper point

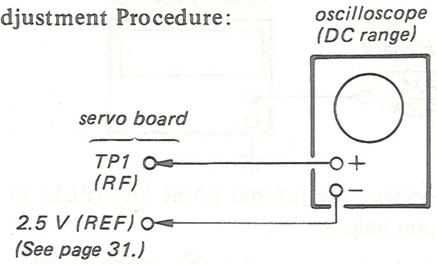

TP24
(PLCK)
IC601
A/G
BLU
RED
WHT
(BLK)
C315 6.8/6.3V
C610 33p
R613 100k
(DA4)
(DA3)
(DA2)
(DA1)
(PSSL)
Ⓑ PSSL solder jumper point

FOCUS BIAS ADJUSTMENT

Conditions

The set should be placed either vertically or horizontally.

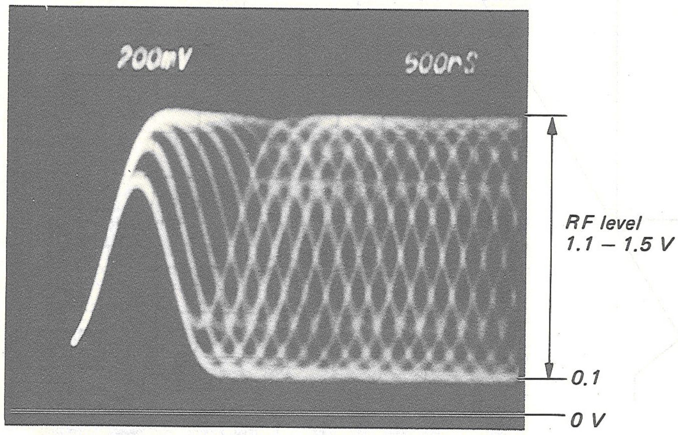
Adjustment Procedure:


oscilloscope
(DC range)
servo board
TP1
(RF)
+
−
2.5 V (REF)
(See page 31.)

1. Put the set into service mode (see page 7 – 9).
2. Connect the oscilloscope to servo board test point TP1 (RF).
3. Press the ▶▶| and |◀◀ keys to move the FOP to the center. (Move the FOP to the music area on the disc to enable easy visibility of the eye pattern).
4. Insert the disc (YEDS-1) and close the top panel.
5. Press the ▶❚❚ key.
   (It will go from focus search to focus on, and CLV pull-in mode state. Tracking and sled are OFF.)
6. Press the KEY-MODE button. (Tracking and sled go ON.)
7. eye pattern is good. A good eye pattern means that the diamond shape(◇)in the center of the waveform can be clearly distinguished.

- **RF Signal Reference Waveform (eye pattern)**

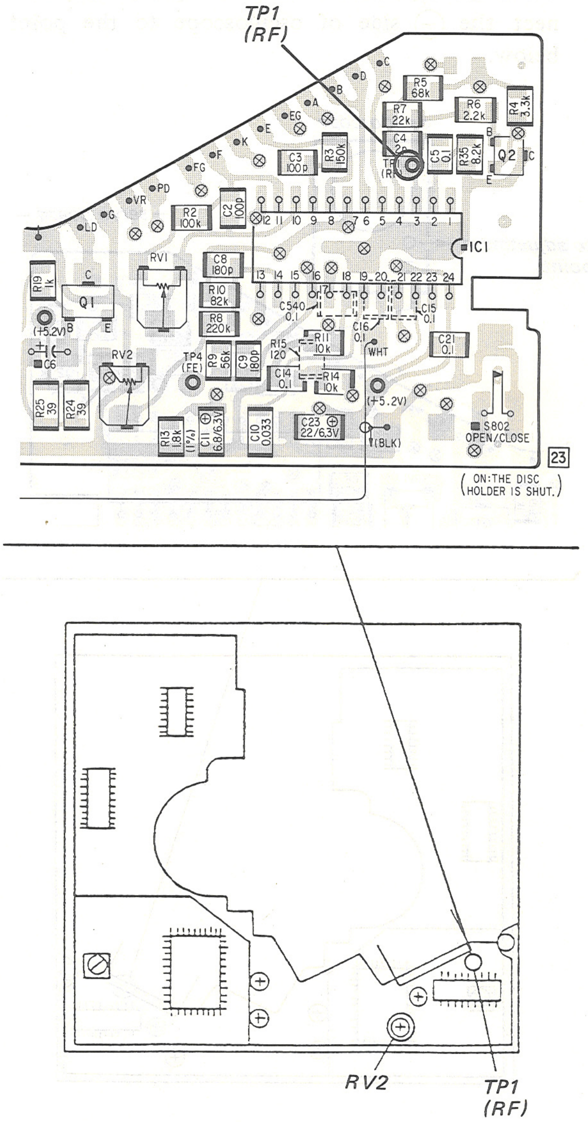
VOLT/DIV: 200 mV
TIME/DIV: 500 nS



When observing the eye pattern, set the oscilloscope for AC range and raise vertical sensitivity.

8. Press the ■ key. Confirm that disc rotation stops. If not, press the ■ key again, longer.
9. After adjustment, release service mode (see page 7 – 9).

Adjustment Location : servo board

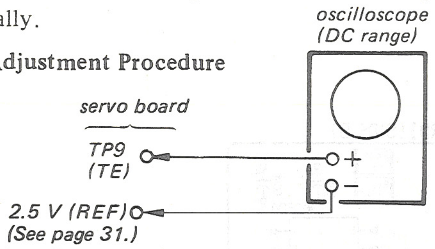

TP1
(RF)
R5 68k
R7 22k
R6 2.2k
R4 3.3k
C4
C5 0.1
R35 8.2k
Q2
R3 150k
C3 100p
C2 100p
R2 100k
IC1
RV1
C8 180p
R10 82k
R8 220k
R19 1k
Q1
(+5.2V)
C6
RV2
TP4 (FE)
R9 56k
C9 180p
C540 0.1
R15 120
R11 10k
C16 0.1
C15 0.1
C21 0.1
WHT
C14 0.1
R14 10k
(+5.2V)
R25 39
R24 39
R13 1.8k
C11 6.8/6.3V
C10 0.033
C23 22/6.3V
(BLK)
S802 OPEN/CLOSE
23
(ON:THE DISC HOLDER IS SHUT.)
RV2
TP1
(RF)

TRACKING BALANCE ADJUSTMENT

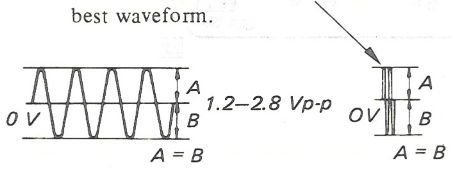
Conditions

The set should be placed either vertically or horizontally.

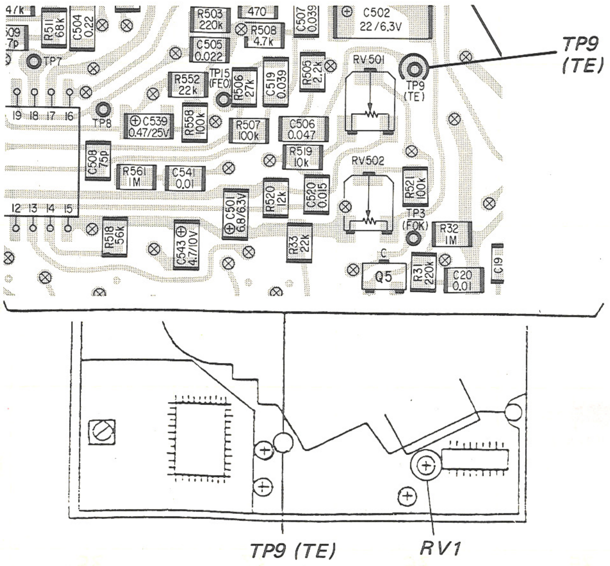
Adjustment Procedure


oscilloscope
(DC range)
servo board
TP9
(TE)
+
−
2.5 V (REF)
(See page 31.)

1. Connect the oscilloscope to servo board TP9 (TE).
2. Put the set into service mode (see page 7 – 9).
3. Press the ▶▶| and |◀◀ keys to move the FOP to the center.
4. Insert the disc (YEDS-1) and close the top panel.
5. Press the ▶❚❚ key.
   (It will go from focus search to focus on, and CLV pull-in mode state. Tracking and sled are OFF.)
6. Adjust RV1 so that the oscilloscope waveform is symmetrical on the top and bottom in relation to 0 V.
   Note: Take sweep time as long as possible to obtain best waveform.


A
B
0 V
1.2–2.8 Vp-p
A = B
A
B
0V
A = B

7. Press the ■ key. Confirm that disc rotation stops. If it does not, press the ■ key again, longer.
8. After adjustment, release service mode (see page 7 – 9).


TP9
(TE)
RV501
RV502
TP7
TP8
TP3
(FOK)
Q5
C502
22/6.3V
TP9 (TE)
RV1

SLED MOTOR OFFSET CHECK AND ADJUSTMENT

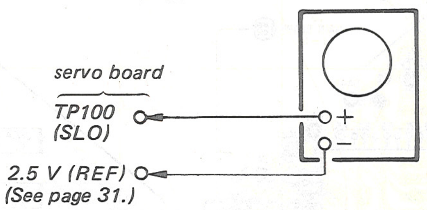
Conditions

Tracking balance adjustment should have been finished.

Close the top panel.

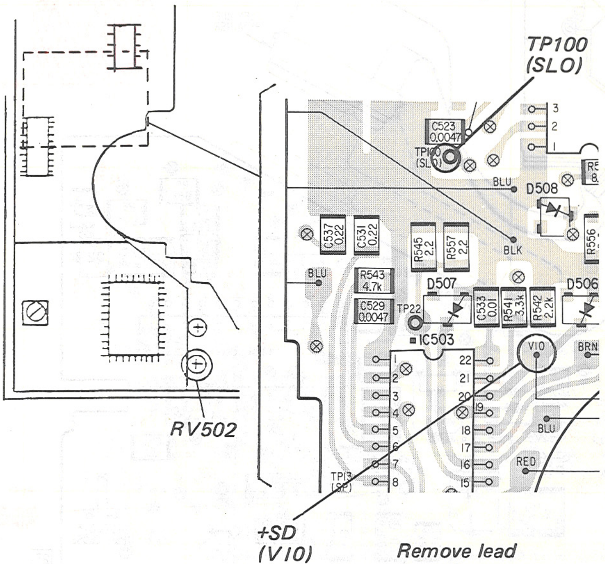
(If the top panel is left open, natural light will enter through the FOP objective lens, and adjustment will not be correct.)

Adjustment Procedure:


oscilloscope
(DC range)
servo board
TP100
(SLO)
+
−
2.5 V (REF)
(See page 31.)

1. Remove the sled motor +SD lead. (In this adjustment, DC voltage is applied to the tracking amp inside IC501, so this prevents the sled motor from running at abnormal-high speed if RV502 is adjusted too far to the + or − side.)
2. Connect the oscilloscope to servo board TP100 (SLO).
3. Put the set into service mode (see page 7 – 9).
4. Press the KEY-MODE button (Tracking and sled go ON.)
5. Adjust RV504 so that the oscilloscope reading is $50\ \text{mV}\,^{+50\ \text{mV}}_{-0\ \text{V}}$.
6. Press the ■ key.
7. After adjustment, release service mode (see page 7 – 9).
8. Reconnect the sled motor lead removed in step 1.

Adjustment Location: servo board


TP100
(SLO)
RV502
+SD
(V10)
IC503
D506
D507
D508
BLU
BLK
BRN
RED

Remove lead for adjustment; reconnect afterward.

TRACKING GAIN AJUSTMENT

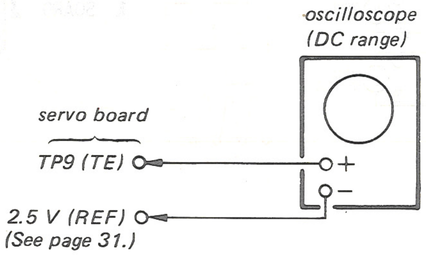
Focus/tracking gain determines the pick-up follow-up (vertical and horizontal) relative to mechanical noise and mechanical shock when the 2-axis device operates.
However, as these reciprocate, the adjustment is at the point where both are satisfied.

- When gain is high, the noise when the 2-axis device operates increases.
- When gain is low, it is more susceptible to mechanical shock and skipping occurs more easily.

This adjustment is to be performed when replacing the following parts:
FOP, RV501 (tracking gain VR). Only tracking gain in adjusted on this set.

Adjustment Procedure:

(perform at normal operation)



1. Place the set level, horizontally (upper panel can be facing down). (If the set is not level, the 2-axis device will be weighted and adjustment cannot be done.)
2. Connect the oscilloscope to servo board test point TP9 (TE).
3. Turn the power switch on, insert the disc (YEDS-1) and press the ▶❚❚ key.
4. Turn RV501 slightly clockwise (tracking gain drops) and obtain a waveform with a fundamental wave (waveform has large waves) as in Fig. 9.
5. Turn RV501 slowly counterclockwise (tracking gain rises) until the fundamental wave disappears (no large waves) as in Fig. 10.
6. Set RV501 to the position about 30° counterclockwise from the position obtained in step 5. I RV5012 contact point location is within the range shown in Fig. 8 Ⓐ, tracking gain is too high. In this case, readjust from step 4.
7. Select AMS mode with the MODE button, continuously press ▶▶| or |◀◀ key and observe the 100 track jump waveform. Check that no traverse waveform appears for both ▶▶| and |◀◀ directions. (See Figures 11 and 12.) It is acceptable if the traverse waveform appears only now and then, but if it appears constantly, raise tracking gain slightly and check step 7 again.
8. Check that there is not an abnormal amount of operation noise (white noise) from the 2-axis device. If there is, tracking gain is too high, so readjust starting with step 4.

Adjustment Method:

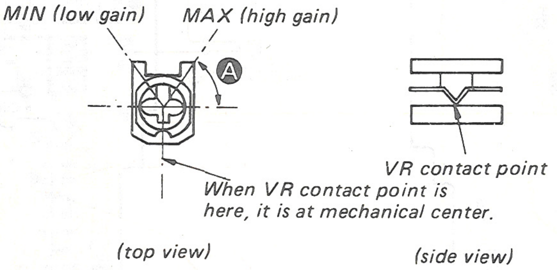


Fig. 8 Mechanical Center (seen from chip mounted side)

The waveforms are those measured with the oscilloscope set as shown below.

VOLT/DIV: 1 V
TIME/DIV: 5 mV

- Waveform when tracking gain is lowered.
  Fundamental wave appears (large waves).

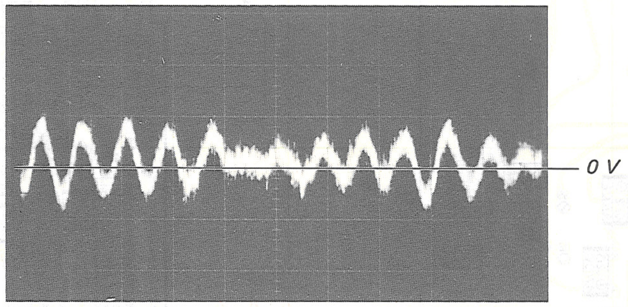


Fig. 9

- Waveform when fundamental wave disappears (no large waves).

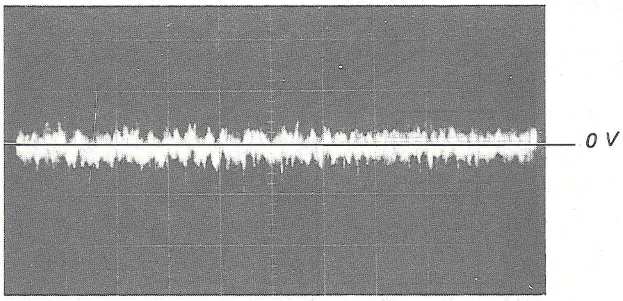


Fig. 10

- Waveform with no traverse waveform during 100 track jump. (Brake application is smooth because of adjustment).

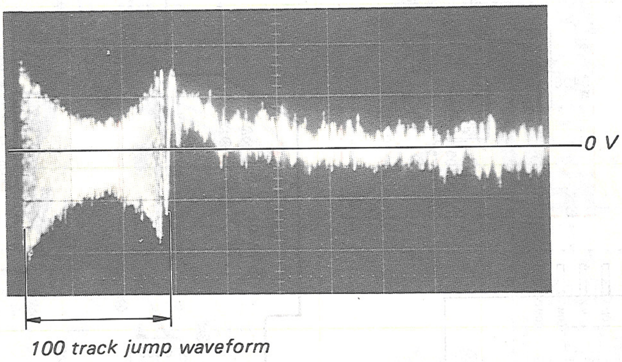


Fig. 11

- Waveform with traverse waveform during 100 track jump. (Brake application is poor because of low tracking gain.)

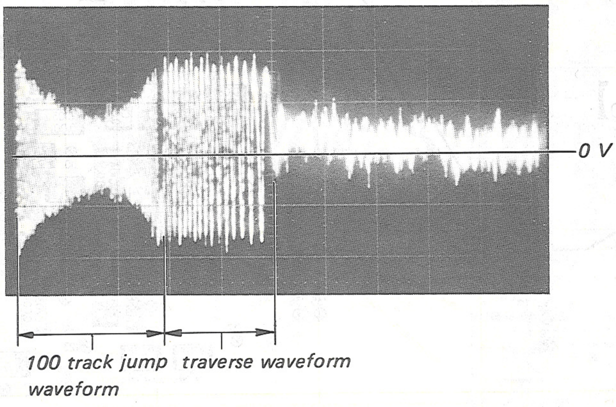
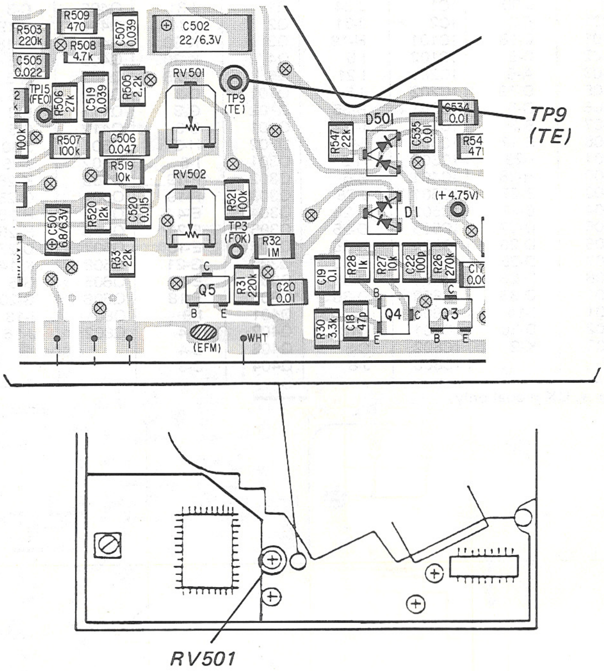


Fig. 12

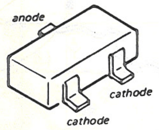
Adjustment Location: servo board


R509 470
R503 220k
R508 4.7k
C507 0.039
C502 22/6.3V
C505 0.022
RV501
TP15 (FEO)
R506 27k
C519 0.039
R505 2.2k
TP9 (TE)
D501
C534 0.01
R507 100k
C506 0.047
R519 10k
R547 22k
C535 0.01
RV502
R520 12k
C520 0.015
R521 100k
(+4.75V)
D1
C501 6.8/6.3V
TP3 (FOK)
R32 1M
R33 22k
Q5
R31 220k
C20 0.01
C19 0.1
R28 1k
R27 10k
C22 100p
R26 270k
R30 3.3k
C18 47p
Q4
Q3
(EFM)
WHT
TP9 (TE)
RV501

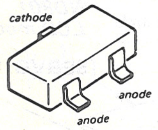
SECTION 4
DIAGRAMS

- **Semiconductor Lead Layouts**

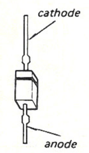
1S2835


anode
cathode
cathode

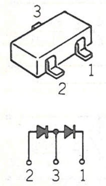
1S2837


cathode
anode
anode

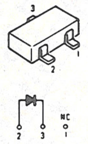
1SS283


cathode
anode

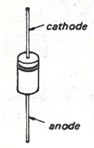
1SS123



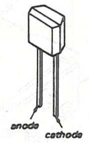
E10QS03
RD2.7M-B2
RD5.6M-B1
RD10M-B2
SB01-05CP
SB05-05CP



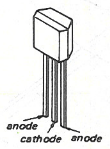
1SS119
RD2.7E-B
RD5.6E-L2


cathode
anode

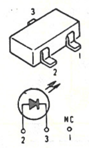
KV1230Z


anode
cathode

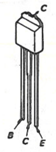
SVC203


anode
cathode
anode

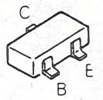
SLM-13VM



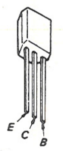
2SB1202



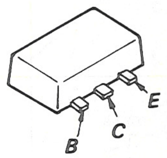
2SA812
2SB624-BV4
2SC1623
2SC2223
2SC2712
2SC2714-Y
2SD596
DTA124EK
DTC114YK
DTC124EK
DTC144EK



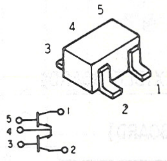
DTC143TS



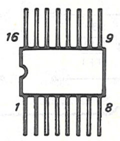
2SB798
2SD999
2SD1664



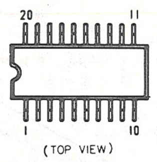
FMG4
FMS1
FMW1



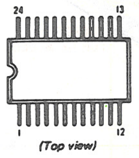
CX10054
μPD4053BG



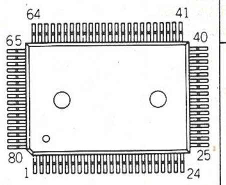
CX10053B


20
11
1
10
(TOP VIEW)

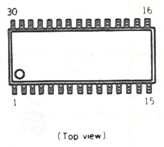
CX20109
CXK5816M-10L
PCM55HP-S


24
13
1
12
(Top view)

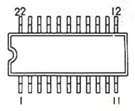
CX23035


64
41
65
40
80
25
1
24

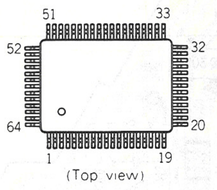
CXA1023M


30
16
1
15
(Top view)

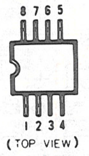
CXA1083M



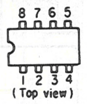
CXP5024H-001Q


51
33
52
32
64
20
1
19
(Top view)

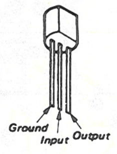
KV1260M
M5201FP
M5218FP
NJM2903M
NJM4560M
TL072CPS
μPC4082G2
μPC4558G2


8 7 6 5
1 2 3 4
(TOP VIEW)

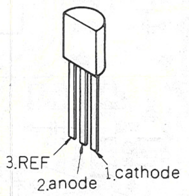
NJM4556D


8 7 6 5
1 2 3 4
(Top view)

S-81250HG


Ground
Input
Output

TL431CLPB


3.REF
2.anode
1.cathode

Note on Schematic Diagram of CD section:

- All capacitors are in μF unless otherwise noted. pF: μμF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and ¼ W or less unless otherwise specified.
- ⟶ : CD signal path.
- ⇨ : FM signal path.
- Components for right channel have same values as for left channel. Reference numbers are coded from 200.
- △ : internal component.
- ▬ : B+ bus.
- ╍ : B– bus.
- ▭ : adjustment for repair.
- Voltages, waveform and total current are measured with top panel closed.
- Power voltage is DC 9 V and fed with regulated dc power supply from DC in 9 V (external power voltage) jack. Voltages are DC with respect to ground in service mode when FUNCTION switch set to CD. Voltage variations may be noted due to normal production tolerances.
  no mark : stop mode
  ( ): play mode
  < >: See page 11 for CHARGE CIRCUIT CHECK.
- Waveforms are taken to ground in service mode by using oscilloscope. Voltage variations may be noted due to normal production tolerances.
- Total current is measured in service mode when FUNCTION switch set to CD.
- Switch

Ref. No.	Switch	Position
S401	FUNCTION	POWER OFF
S801	LIMIT	OFF
S802	OPEN/CLOSE	ON
S803	PLAY-MODE	OFF
S804	REMAIN/ENTER	OFF
S805	KEY-MODE	OFF
S806	▶ (PLAY/PAUSE)	OFF
S807	▶▶| (FF)	OFF
S808	|◀◀ (FR)	OFF
S809	■ (STOP)	OFF

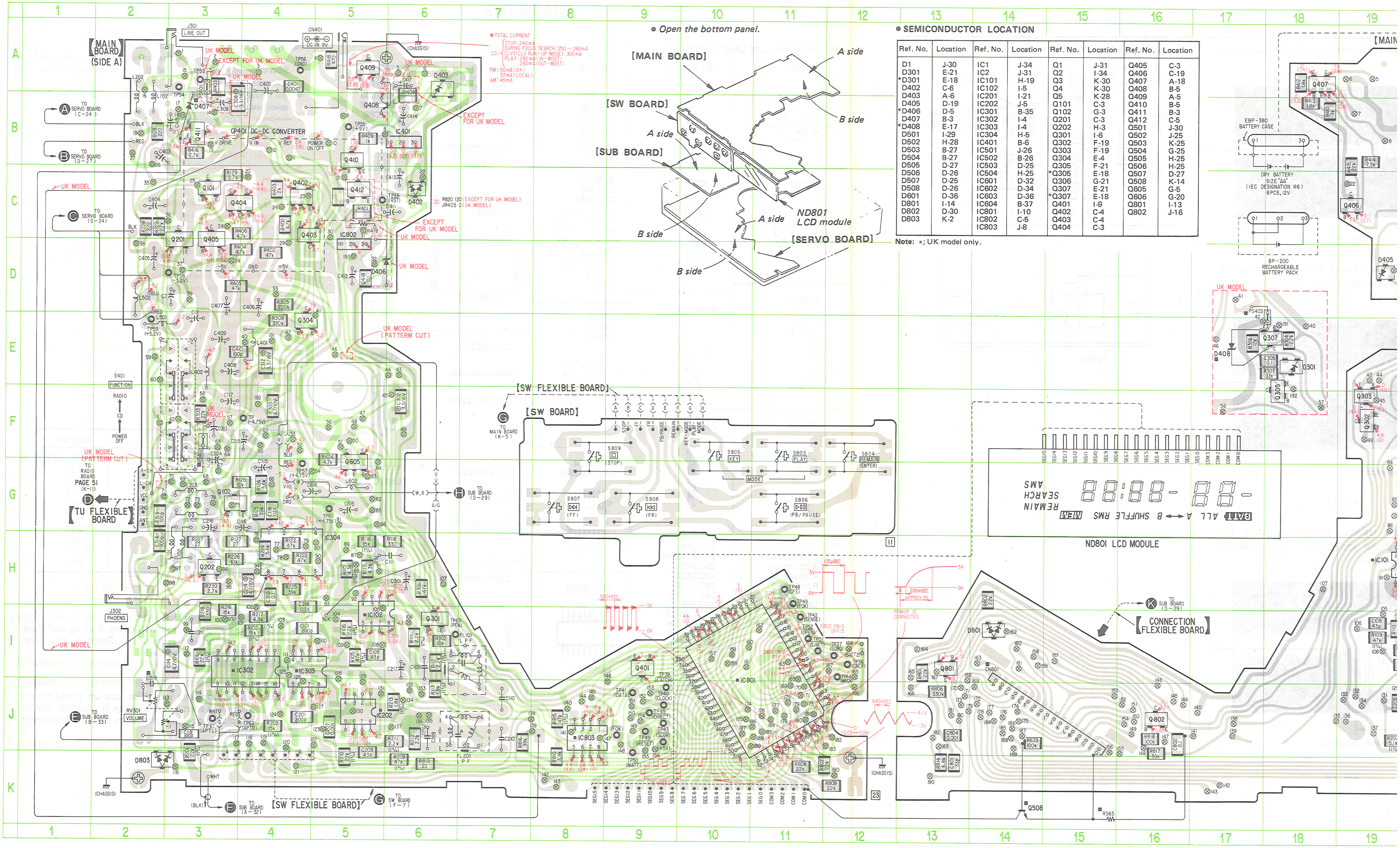
See page 7 — 9 for setup of service mode.

Note: The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

Note: Les composants identifiés par un tramé et une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

4-1. MOUNTING DIAGRAM — CD SECTION —

- See page 38 for Semiconductor Lead Layouts.


[MAIN BOARD] (SIDE A)
Open the bottom panel.
[MAIN BOARD]
[SW BOARD]
[SUB BOARD]
[SERVO BOARD]
A side
B side
ND801 LCD module
CD-DC CONVERTER
UK MODEL
EXCEPT FOR UK MODEL
UK MODEL (PATTERN CUT)
[SW FLEXIBLE BOARD]
[SW BOARD]
[TU FLEXIBLE BOARD]
CONNECTION FLEXIBLE BOARD
ND801 LCD MODULE
EBP-380 BATTERY CASE
DRY BATTERY SIZE "AA" (IEC DESIGNATION R6) 8PCS, 12V
BP-200 RECHARGEABLE BATTERY PACK
S401 FUNCTION
J301 LINE OUT
J302 PHONES
CN401 DC IN 9V
RV301 VOLUME
IC101
IC102
IC201
IC202
IC302
IC303
IC304
IC401
IC802
IC803
(CHASSIS)

● SEMICONDUCTOR LOCATION

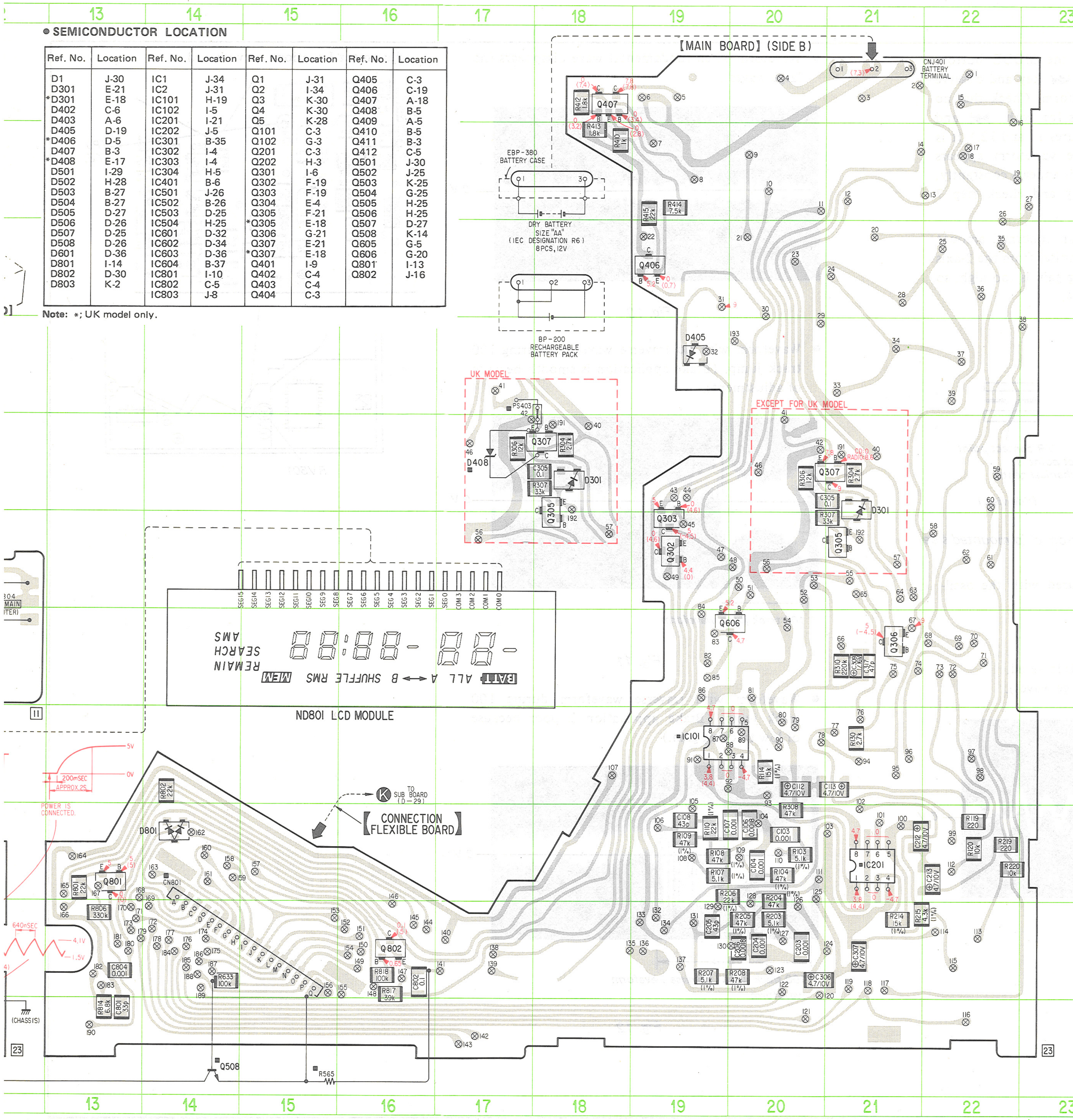
Ref. No.	Location	Ref. No.	Location	Ref. No.	Location	Ref. No.	Location
D1	J-30	IC1	J-34	Q1	J-31	Q405	C-3
D301	E-21	IC2	J-31	Q2	I-34	Q406	C-19
*D301	E-18	IC101	H-19	Q3	K-30	Q407	A-18
D402	C-6	IC102	I-5	Q4	K-30	Q408	B-5
D403	A-6	IC201	I-21	Q5	K-28	Q409	A-5
D405	D-19	IC202	J-5	Q101	C-3	Q410	B-5
*D406	D-5	IC301	B-35	Q102	G-3	Q411	B-3
D407	B-3	IC302	I-4	Q201	C-3	Q412	C-5
*D408	E-17	IC303	I-4	Q202	H-3	Q501	J-30
D501	I-29	IC304	H-5	Q301	I-6	Q502	J-25
D502	H-28	IC401	B-6	Q302	F-19	Q503	K-25
D503	B-27	IC501	J-26	Q303	F-19	Q504	G-25
D504	B-27	IC502	B-26	Q304	E-4	Q505	H-25
D505	D-27	IC503	D-25	Q305	F-21	Q506	H-25
D506	D-26	IC504	H-25	*Q305	E-18	Q507	D-27
D507	D-25	IC601	D-32	Q306	G-21	Q508	K-14
D508	D-26	IC602	D-34	Q307	E-21	Q605	G-5
D601	D-36	IC603	D-36	*Q307	E-18	Q606	G-20
D801	I-14	IC604	B-37	Q401	I-9	Q801	I-13
D802	D-30	IC801	I-10	Q402	C-4	Q802	J-16
D803	K-2	IC802	C-5	Q403	C-4		
		IC803	J-8	Q404	C-3		

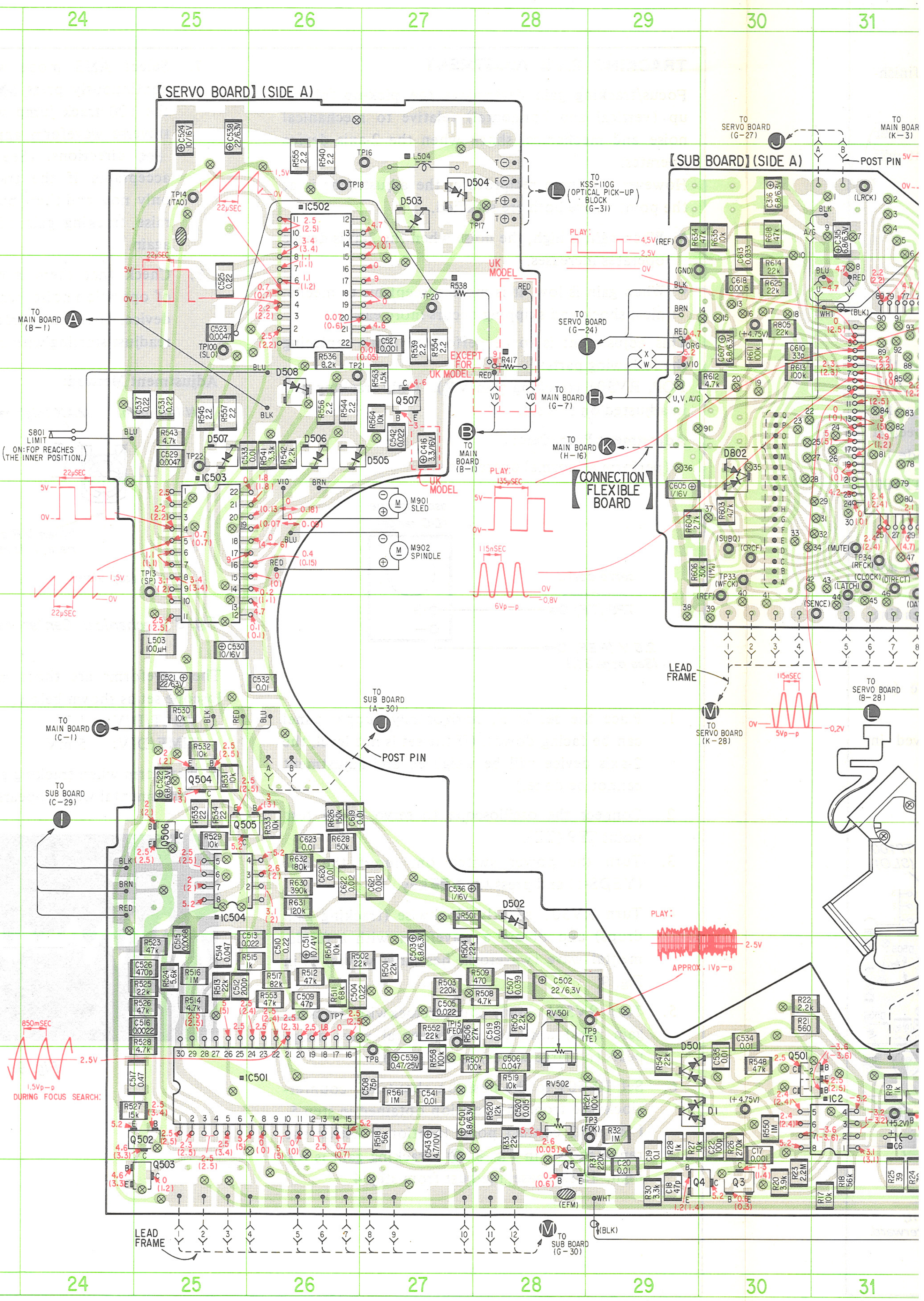
Note: *; UK model only.

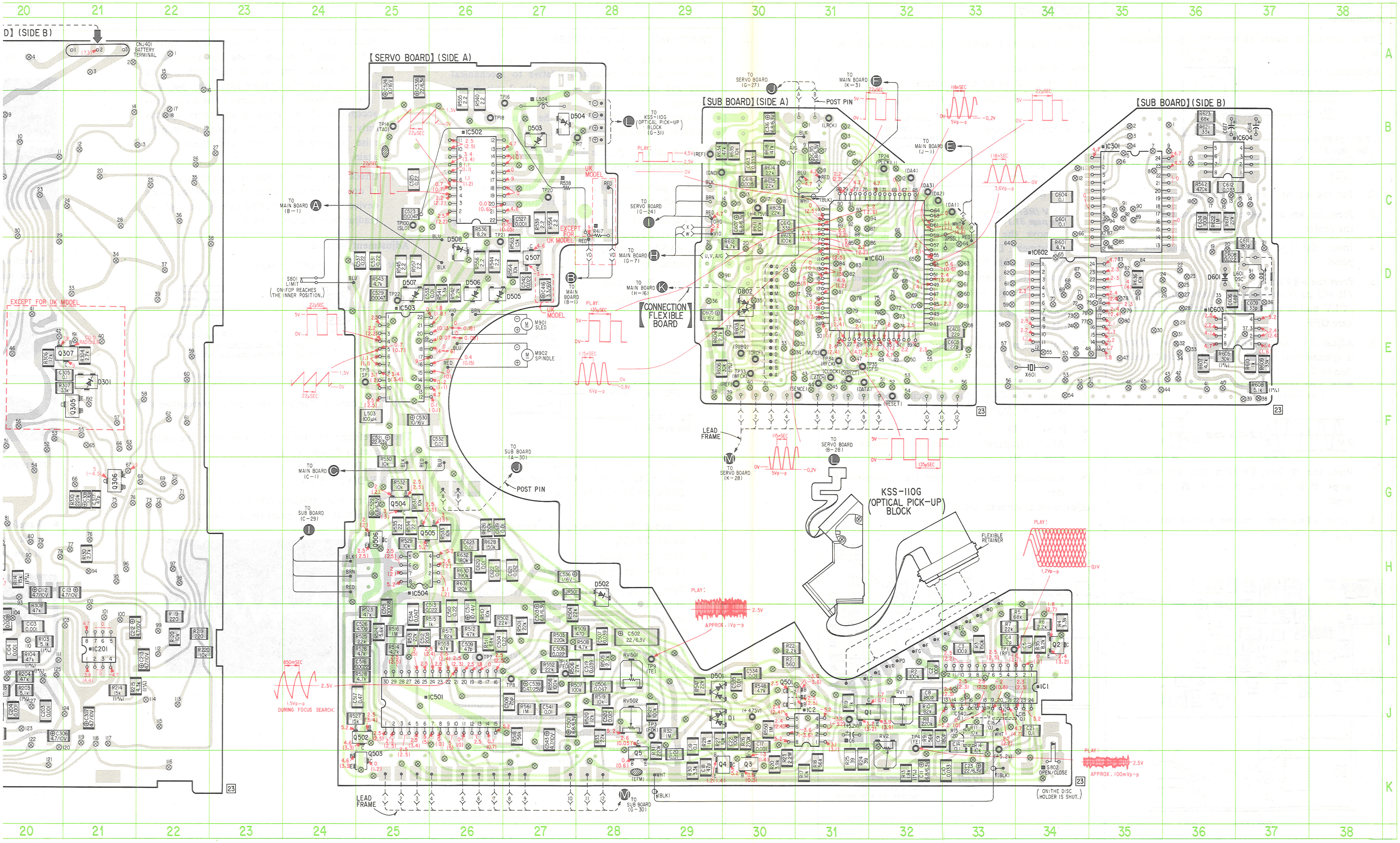
● SEMICONDUCTOR LOCATION

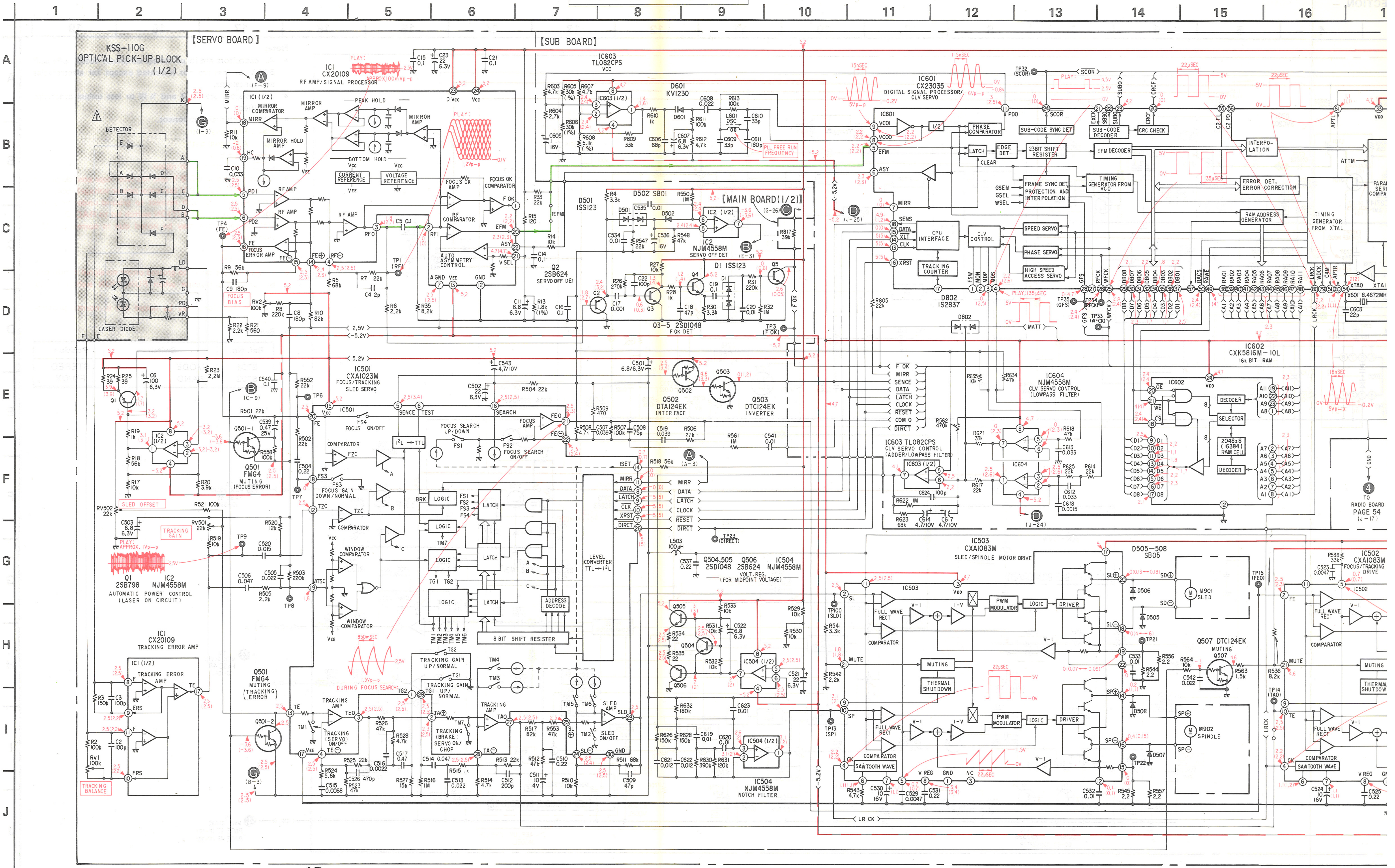
Ref. No.	Location	Ref. No.	Location	Ref. No.	Location	Ref. No.	Location
D1	J-30	IC1	J-34	Q1	J-31	Q405	C-3
D301	E-21	IC2	J-31	Q2	I-34	Q406	C-19
*D301	E-18	IC101	H-19	Q3	K-30	Q407	A-18
D402	C-6	IC102	I-5	Q4	K-30	Q408	B-5
D403	A-6	IC201	I-21	Q5	K-28	Q409	A-5
D405	D-19	IC202	J-5	Q101	C-3	Q410	B-5
*D406	D-5	IC301	B-35	Q102	G-3	Q411	B-3
D407	B-3	IC302	I-4	Q201	C-3	Q412	C-5
*D408	E-17	IC303	I-4	Q202	H-3	Q501	J-30
D501	I-29	IC304	H-5	Q301	I-6	Q502	J-25
D502	H-28	IC401	B-6	Q302	F-19	Q503	K-25
D503	B-27	IC501	J-26	Q303	F-19	Q504	G-25
D504	B-27	IC502	B-26	Q304	E-4	Q505	H-25
D505	D-27	IC503	D-25	Q305	F-21	Q506	H-25
D506	D-26	IC504	H-25	*Q305	E-18	Q507	D-27
D507	D-25	IC601	D-32	Q306	G-21	Q508	K-14
D508	D-26	IC602	D-34	Q307	E-21	Q605	G-5
D601	D-36	IC603	D-36	*Q307	E-18	Q606	G-20
D801	I-14	IC604	B-37	Q401	I-9	Q801	I-13
D802	D-30	IC801	I-10	Q402	C-4	Q802	J-16
D803	K-2	IC802	C-5	Q403	C-4		
		IC803	J-8	Q404	C-3		

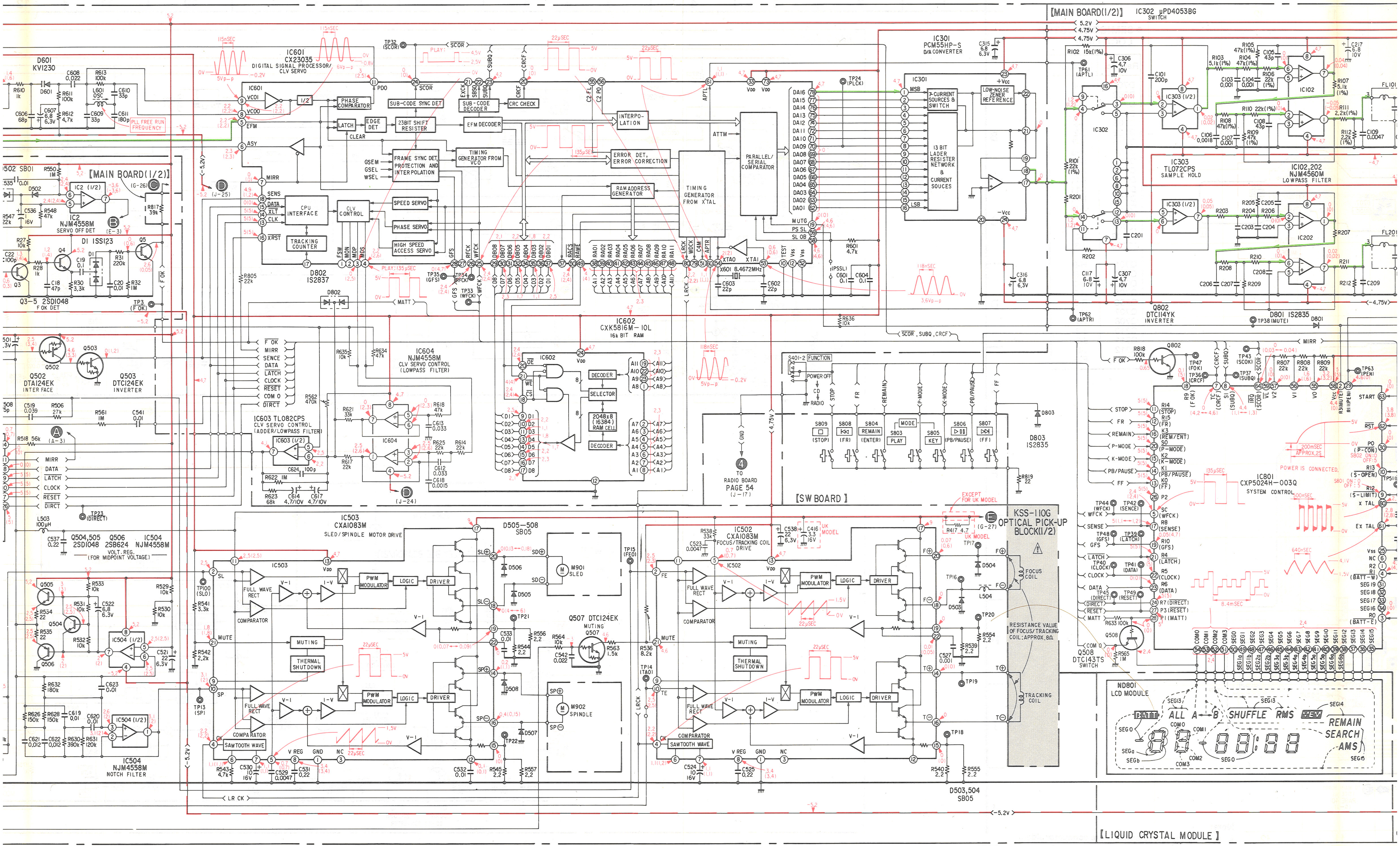
Note: ∗; UK model only.

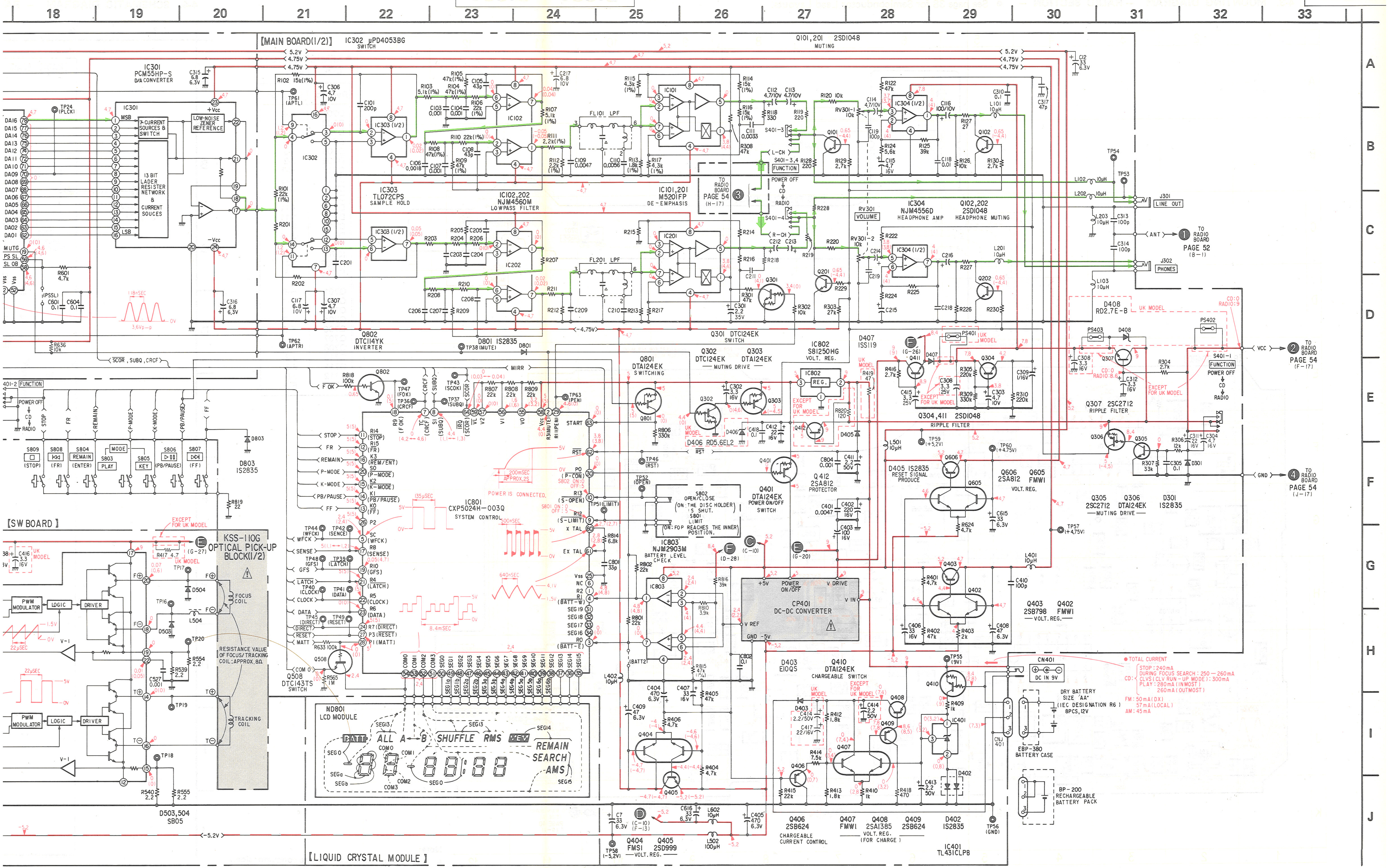

13
14
15
16
17
18
19
20
21
22
23
[MAIN BOARD] (SIDE B)
CNJ401 BATTERY TERMINAL
EBP-380 BATTERY CASE
DRY BATTERY SIZE "AA" (IEC DESIGNATION R6) 8PCS, 12V
BP-200 RECHARGEABLE BATTERY PACK
UK MODEL
EXCEPT FOR UK MODEL
ND801 LCD MODULE
SEARCH
REMAIN
MEM
BATT
ALL
SHUFFLE
RMS
TO SUB BOARD (D-29)
CONNECTION FLEXIBLE BOARD
POWER IS CONNECTED.
200mSEC APPROX. 2s
(CHASSIS)
Q407
Q406
Q405
D405
Q307
D408
D301
Q305
Q303
Q302
Q606
Q306
IC101
IC201
D801
Q801
CN801
Q802
Q508
R565


24
25
26
27
28
29
30
31
[SERVO BOARD] (SIDE A)
[SUB BOARD] (SIDE A)
TO MAIN BOARD (B-1)
TO MAIN BOARD (C-1)
TO MAIN BOARD (H-7)
TO MAIN BOARD (H-16)
TO MAIN BOARD (K-3)
TO SUB BOARD (C-29)
TO SUB BOARD (A-30)
TO SUB BOARD (G-30)
TO SERVO BOARD (G-27)
TO SERVO BOARD (G-24)
TO SERVO BOARD (K-28)
TO SERVO BOARD (B-28)
TO KSS-110G (OPTICAL PICK-UP BLOCK) (G-31)
S801 LIMIT ON: FOP REACHES THE INNER POSITION.
CONNECTION FLEXIBLE BOARD
M901 SLED
M902 SPINDLE
POST PIN
LEAD FRAME
UK MODEL
EXCEPT FOR UK MODEL
PLAY
DURING FOCUS SEARCH
APPROX. 1Vp-p
IC502
IC503
IC504
IC501
IC2
D503
D504
D505
D506
D507
D508
D502
D501
D802
Q501
Q502
Q503
Q504
Q505
Q506
Q507
Q5
Q4
Q3
RV501
RV502


20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
A
B
C
D
E
F
G
H
I
J
K
D] (SIDE B)
CNJ401 BATTERY TERMINAL
EXCEPT FOR UK MODEL
Q307
D301
Q305
Q306
IC201
[SERVO BOARD] (SIDE A)
IC502
IC503
IC504
IC501
D503
D504
D505
D506
D507
D508
Q504
Q505
Q506
Q507
Q502
Q503
D502
TO KSS-110G (OPTICAL PICK-UP BLOCK (G-31)
UK MODEL
EXCEPT FOR UK MODEL
TO MAIN BOARD (B-1)
TO MAIN BOARD (C-1)
TO SUB BOARD (C-29)
TO SUB BOARD (A-30)
TO SUB BOARD (G-30)
S801 LIMIT (ON:FOP REACHES THE INNER POSITION.)
M901 SLED
M902 SPINDLE
POST PIN
LEAD FRAME
[SUB BOARD] (SIDE A)
[SUB BOARD] (SIDE B)
[CONNECTION FLEXIBLE BOARD]
TO SERVO BOARD (G-27)
TO SERVO BOARD (G-24)
TO SERVO BOARD (K-28)
TO SERVO BOARD (B-28)
TO MAIN BOARD (K-3)
TO MAIN BOARD (J-1)
TO MAIN BOARD (G-7)
TO MAIN BOARD (H-16)
IC601
IC301
IC602
IC603
IC604
D601
X601
D802
KSS-110G (OPTICAL PICK-UP) BLOCK
FLEXIBLE RETAINER
IC1
IC2
Q1
Q2
Q3
Q4
Q5
D501
Q501
S802 OPEN/CLOSE (ON:THE DISC HOLDER IS SHUT.)
PLAY:
APPROX. 1Vp-p
APPROX. 100mVp-p
1.5Vp-p DURING FOCUS SEARCH.
1.2Vp-p
5Vp-p
6Vp-p
22μSEC
135μSEC
118nSEC
115nSEC

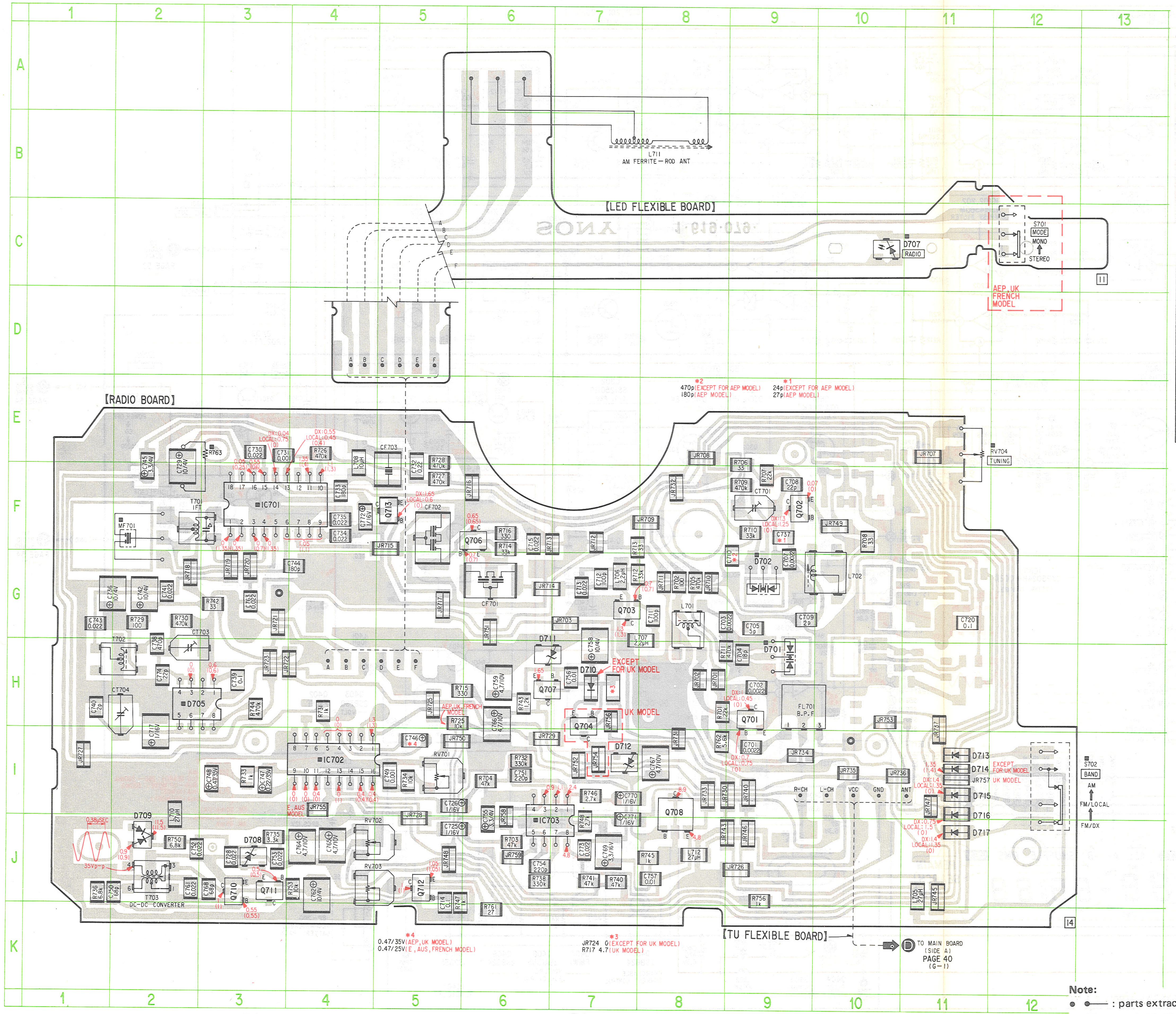

KSS-110G
OPTICAL PICK-UP BLOCK (1/2)
DETECTOR
LASER DIODE
[SERVO BOARD]
[SUB BOARD]
[MAIN BOARD(1/2)]
IC1 CX20109 RF AMP/SIGNAL PROCESSOR
MIRROR COMPARATOR
MIRROR AMP
PEAK HOLD
BOTTOM HOLD
MIRROR HOLD AMP
CURRENT REFERENCE
VOLTAGE REFERENCE
FOCUS OK AMP
FOCUS OK COMPARATOR
RF AMP
RF COMPARATOR
AUTO ASYMMETRY CONTROL
FOCUS ERROR AMP
FOCUS BIAS
IC603 TL082CPS VCO
D601 KV1230
PLL FREE RUN FREQUENCY
D501 1SS123
D502 SB01
IC2 NJM4558M SERVO OFF DET
Q2 2SB624 SERVO OFF DET
D1 1SS123
Q3-5 2SD1048 F OK DET
IC601 CX23035 DIGITAL SIGNAL PROCESSOR/ CLV SERVO
PHASE COMPARATOR
SUB-CODE SYNC DET
SUB-CODE DECODER
CRC CHECK
INTERPO-LATION
EDGE DET
23BIT SHIFT RESISTER
EFM DECODER
FRAME SYNC DET, PROTECTION AND INTERPOLATION
TIMING GENERATOR FROM VCO
ERROR DET. ERROR CORRECTION
RAM ADDRESS GENERATOR
TIMING GENERATOR FROM X'TAL
CPU INTERFACE
CLV CONTROL
SPEED SERVO
PHASE SERVO
HIGH SPEED ACCESS SERVO
TRACKING COUNTER
D802 1S2837
X601 8.4672MHz
IC602 CXK5816M-10L 16k BIT RAM
DECODER
SELECTOR
2048×8 (16384) RAM CELL
IC604 NJM4558M CLV SERVO CONTROL (LOWPASS FILTER)
IC603 TL082CPS CLV SERVO CONTROL (ADDER/LOWPASS FILTER)
TO RADIO BOARD PAGE 54 (J-17)
Q1 2SB798 IC2 NJM4558M AUTOMATIC POWER CONTROL (LASER ON CIRCUIT)
SLED OFFSET
TRACKING GAIN
TRACKING BALANCE
IC501 CXA1023M FOCUS/TRACKING SLED SERVO
Q501 FMG4 MUTING (FOCUS ERROR)
FOCUS ON/OFF
FOCUS SEARCH UP/DOWN
FOCUS SEARCH ON/OFF
FOCUS GAIN DOWN/NORMAL
COMPARATOR
WINDOW COMPARATOR
LOGIC
LATCH
ADDRESS DECODE
8 BIT SHIFT RESISTER
LEVEL CONVERTER TTL→I²L
Q502 DTA124EK INTER FACE
Q503 DTC124EK INVERTER
Q504,505 2SD1048 Q506 2SB624 IC504 NJM4558M VOLT. REG. (FOR MIDPOINT VOLTAGE)
IC504 NJM4558M NOTCH FILTER
IC1 CX20109 TRACKING ERROR AMP
TRACKING ERROR AMP
Q501 FMG4 MUTING (TRACKING ERROR)
TRACKING GAIN UP/NORMAL
TRACKING (BRAKE) SERVO ON/ CHOP
TRACKING (SERVO) ON/OFF
SLED AMP
SLED ON/OFF
DURING FOCUS SEARCH
IC503 CXA1083M SLED/SPINDLE MOTOR DRIVE
D505–508 SB05
FULL WAVE RECT
PWM MODULATOR
DRIVER
MUTING
THERMAL SHUTDOWN
SAWTOOTH WAVE
M901 SLED
M902 SPINDLE
Q507 DTC124EK MUTING
IC502 CXA1083M FOCUS/TRACKING DRIVE
PLAY: APPROX. 100mVp-p
PLAY: APPROX. 1Vp-p
LR CK


[MAIN BOARD (1/2)]
IC302 μPD4053BG SWITCH
IC301 PCM55HP-S D/A CONVERTER
IC601 CX23035 DIGITAL SIGNAL PROCESSOR/CLV SERVO
D601 KV1230
IC601
VCO1
1/2
PHASE COMPARATOR
SUB-CODE SYNC DET
SUB-CODE DECODER
CRC CHECK
LATCH
EDGE DET
23BIT SHIFT RESISTER
EFM DECODER
INTERPOLATION
PLL FREE RUN FREQUENCY
FRAME SYNC DET, PROTECTION AND INTERPOLATION
TIMING GENERATOR FROM VCO
ERROR DET, ERROR CORRECTION
RAM ADDRESS GENERATOR
TIMING GENERATOR FROM X'TAL
PARALLEL/SERIAL COMPARATOR
CPU INTERFACE
CLV CONTROL
SPEED SERVO
PHASE SERVO
TRACKING COUNTER
HIGH SPEED ACCESS SERVO
ATTM
X601 8.4672MHz
7-CURRENT SOURCES & SWITCH
LOW-NOISE ZENER REFERENCE
13 BIT LADER RESISTER NETWORK & CURRENT SOUCES
MSB
LSB
IC303 TL072CPS SAMPLE HOLD
IC102,202 NJM4560M LOW PASS FILTER
IC102
IC202
IC303 (1/2)
Q801,802 DTC114YK INVERTER
D801 IS2835
TP38 (MUTE)
IC2 NJM4558M SERVO OFF DET
D1 ISS123
Q3-5 2SD1048 F OK DET
D802 IS2837
IC602 CXK5816M-10L 16k BIT RAM
2048×8 (16384) RAM CELL
DECODER
SELECTOR
Q502 DTA124EK INTER FACE
Q503 DTC124EK INVERTER
IC604 NJM4558M CLV SERVO CONTROL (LOWPASS FILTER)
IC603 TL082CPS CLV SERVO CONTROL (ADDER/LOWPASS FILTER)
F OK
MIRR
SENCE
DATA
LATCH
CLOCK
RESET
COM O
DIRCT
TO RADIO BOARD PAGE 54 (J-17)
[SW BOARD]
S401-2 FUNCTION
POWER OFF
CD
RADIO
STOP
FR
REMAIN
P-MODE
K-MODE
PB/PAUSE
FF
S809 (STOP)
S808 (FR)
S804 REMAIN (ENTER)
S803 MODE PLAY
S805 KEY
S806 (PB/PAUSE)
S807 (FF)
D803 IS2835
IC801 CXP5024H-003Q SYSTEM CONTROL
POWER IS CONNECTED.
200mSEC APPROX.2S
IC503 CXA1083M SLED/SPINDLE MOTOR DRIVE
D505-508 SB05
M901 SLED
M902 SPINDLE
Q507 DTC124EK MUTING
IC502 CXA1083M FOCUS/TRACKING COIL DRIVE
FULL WAVE RECT
COMPARATOR
PWM MODULATOR
LOGIC
DRIVER
MUTING
THERMAL SHUTDOWN
SAWTOOTH WAVE
V REG
GND
NC
D503,504 SB05
KSS-110G OPTICAL PICK-UP BLOCK (1/2)
FOCUS COIL
TRACKING COIL
RESISTANCE VALUE OF FOCUS/TRACKING COIL: APPROX. 8Ω
EXCEPT FOR UK MODEL
UK MODEL
Q504,505 2SD1048
Q506 2SB624
IC504 NJM4558M VOLT. REG. (FOR MIDPOINT VOLTAGE)
IC504 NJM4558M NOTCH FILTER
Q508 DTC143TS SWITCH
ND801 LCD MODULE
BATT
ALL
A-B
SHUFFLE
RMS
REMAIN
SEARCH
AMS
[LIQUID CRYSTAL MODULE]
5.2V
4.75V
-5.2V
-4.75V
LR CK


18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33
A B C D E F G H I J
[MAIN BOARD(1/2)]
IC302 μPD4053BG SWITCH
Q101,201 2SD1048 MUTING
IC301 PCM55HP-S D/A CONVERTER
IC303 TL072CPS SAMPLE HOLD
IC102,202 NJM4560M LOWPASS FILTER
IC101,201 M5201FP DE-EMPHASIS
FL101 LPF
FL201 LPF
IC304 NJM4556D HEADPHONE AMP
Q102,202 2SD1048 HEADPHONE MUTING
RV301 VOLUME
S401-1 FUNCTION
TO RADIO BOARD PAGE 54 (H-17)
J301 LINE OUT
J302 PHONES
TO RADIO BOARD PAGE 52 (B-1)
TO RADIO BOARD PAGE 54 (F-17)
TO RADIO BOARD PAGE 54 (J-17)
D408 RD2.7E-B UK MODEL
Q802 DTC114YK INVERTER
D801 1S2835
Q301 DTC124EK SWITCH
IC802 S81250HG VOLT. REG.
D407 1SS119
Q801 DTA124EK SWITCHING
Q302 DTC124EK Q303 DTA124EK MUTING DRIVE
Q304,411 2SD1048 RIPPLE FILTER
Q307 2SC2712 RIPPLE FILTER
D406 RD5.6EL2
Q401 DTA124EK POWER ON/OFF SWITCH
Q412 2SA812 PROTECTOR
D405 1S2835 RESET SIGNAL PRODUCE
Q606 2SA812 Q605 FMW1 VOLT. REG.
Q305 2SC2712 Q306 DTA124EK MUTING DRIVE
D301 1S2835
IC801 CXP5024H-003Q SYSTEM CONTROL
IC803 NJM2903M BATTERY LEVEL CHECK
CP401 DC-DC CONVERTER
Q403 2SB798 Q402 FMW1 VOLT. REG.
[SW BOARD]
S809 (STOP) S808 (FR) S804 REMAIN (ENTER) S803 PLAY S805 KEY S806 (PB/PAUSE) S807 (FF)
D803 1S2835
KSS-110G OPTICAL PICK-UP BLOCK(1/2)
FOCUS COIL
TRACKING COIL
RESISTANCE VALUE OF FOCUS/TRACKING COIL : APPROX. 8Ω
PWM MODULATOR LOGIC DRIVER
D503,504 SB05
Q508 DTC143TS SWITCH
ND801 LCD MODULE
BATT ALL A-B SHUFFLE RMS REMAIN SEARCH AMS
[LIQUID CRYSTAL MODULE]
S802 OPEN/CLOSE (ON: THE DISC HOLDER IS SHUT.)
S801 LIMIT (ON: FOR REACHES THE INNER POSITION.)
POWER IS CONNECTED.
D403 EIOQS
Q410 DTA124EK CHARGEABLE SWITCH
CN401 DC IN 9V
DRY BATTERY SIZE 'AA' (IEC DESIGNATION R6) 8PCS, 12V
EBP-380 BATTERY CASE
BP-200 RECHARGEABLE BATTERY PACK
TOTAL CURRENT
CD: STOP: 240mA DURING FOCUS SEARCH: 250-260mA CLV S(CLV RUN-UP MODE): 300mA PLAY: 280mA (IN MOST) 260mA (OUTMOST)
FM: 50mA(DX) 57mA(LOCAL)
AM: 45mA
Q406 2SB624 CHARGEABLE CURRENT CONTROL
Q407 FMW1 Q408 2SA1385 Q409 2SB624 VOLT. REG. (FOR CHARGE)
D402 1S2835
IC401 TL431CLPB
Q404 FMS1 Q405 2SD999 VOLT. REG.
EXCEPT FOR UK MODEL

4-3. MOUNTING DIAGRAM – RADIO SECTION –

- See page 38 for Semiconductor Lead Layouts.


[LED FLEXIBLE BOARD]
[RADIO BOARD]
[TU FLEXIBLE BOARD]
L711 AM FERRITE-ROD ANT
D707 RADIO
S701 MODE MONO STEREO
AEP,UK FRENCH MODEL
RV704 TUNING
IC701
IC702
IC703
T701 IFT
T702
T703 DC-DC CONVERTER
MF701
CF701
CF702
CF703
CT701
CT703
CT704
FL701 B.P.F
L701
L702
Q701
Q702
Q703
Q704
Q706
Q707
Q708
Q710
Q711
Q712
Q713
D701
D702
D705
D708
D709
D710
D711
D712
D713
D714
D715
D716
D717
RV701
RV702
RV703
EXCEPT FOR UK MODEL
UK MODEL
S702 BAND AM FM/LOCAL FM/DX
R-CH L-CH VCC GND ANT
TO MAIN BOARD (SIDE A) PAGE 40 (G-11)
0.38/SEC
35Vp-p

*2 470p(EXCEPT FOR AEP MODEL) 180p(AEP MODEL)

*1 24p(EXCEPT FOR AEP MODEL) 27p(AEP MODEL)

*4 0.47/35V(AEP,UK MODEL) 0.47/25V(E,AUS,FRENCH MODEL)

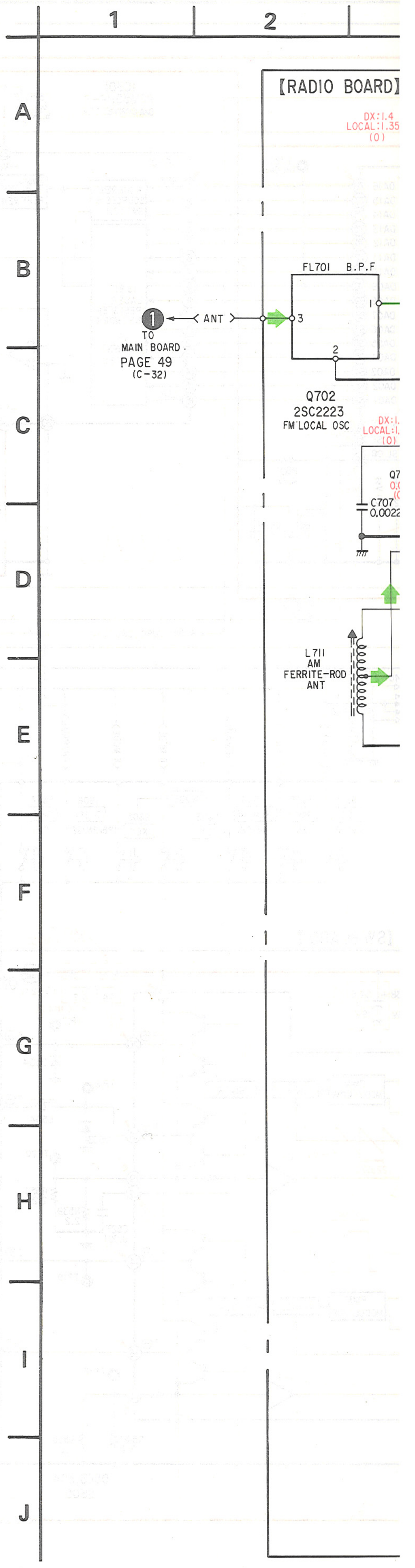
*3 JR724 0(EXCEPT FOR UK MODEL) R717 4.7(UK MODEL)

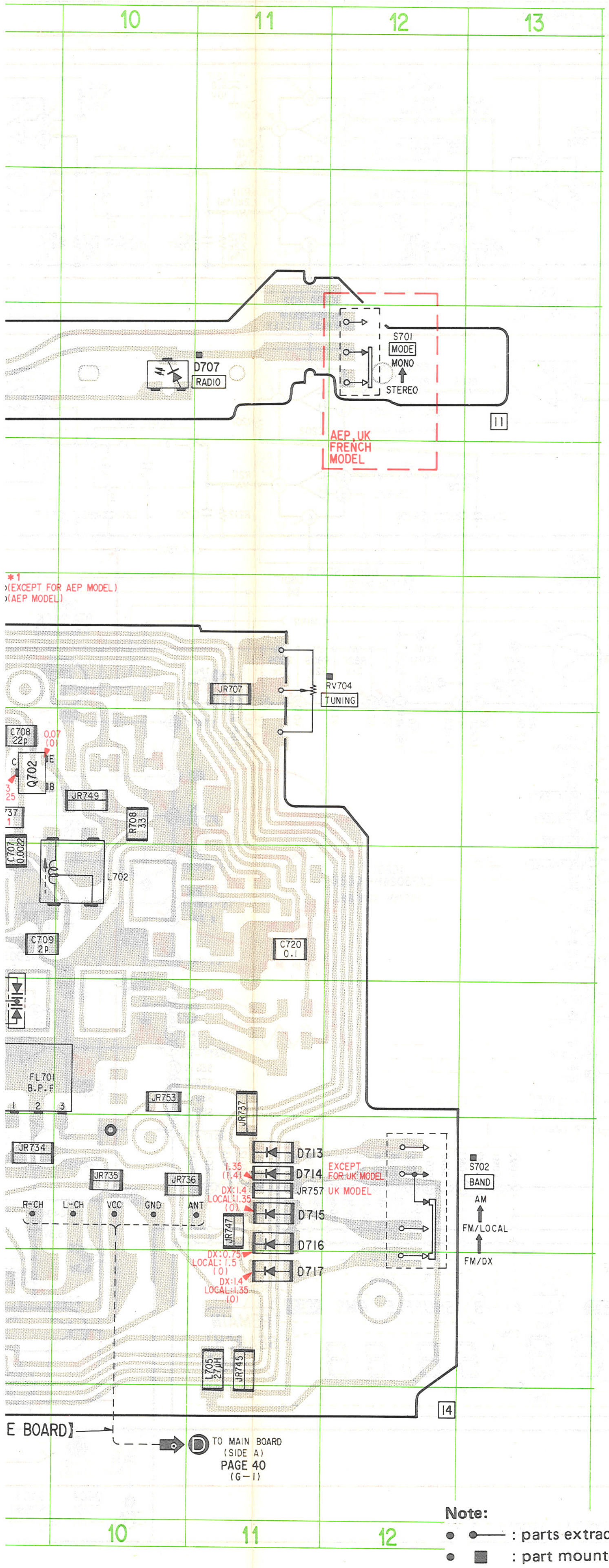
• SEMICONDUCTOR LOCATION

Ref. No.	Location
D701	H-9
D702	G-9
D705	H-2
D707	C-10
D708	J-3
D709	J-2
D710	H-7
D711	H-6
D712	I-7
D713	I-11
D714	I-11
D715	I-11
D716	I-11
D717	J-11
IC701	F-3
IC702	I-4
IC703	J 6
Q701	H-9
Q702	F-9
Q703	G-7
Q704	H-7
Q706	F-6
Q707	H-6
Q708	I-8
Q710	J-3
Q711	J-3
Q712	J-5
Q713	F-5

Note:
- ●—: parts extracted from the conductor side.
- ■ : part mounted on the conductor side.

4-4. SCHEMATIC DIAGRAM – RA


[RADIO BOARD]
FL701 B.P.F
① TO MAIN BOARD PAGE 49 (C-32)
ANT
Q702 2SC2223 FM LOCAL OSC
C707 0.0022
L711 AM FERRITE-ROD ANT

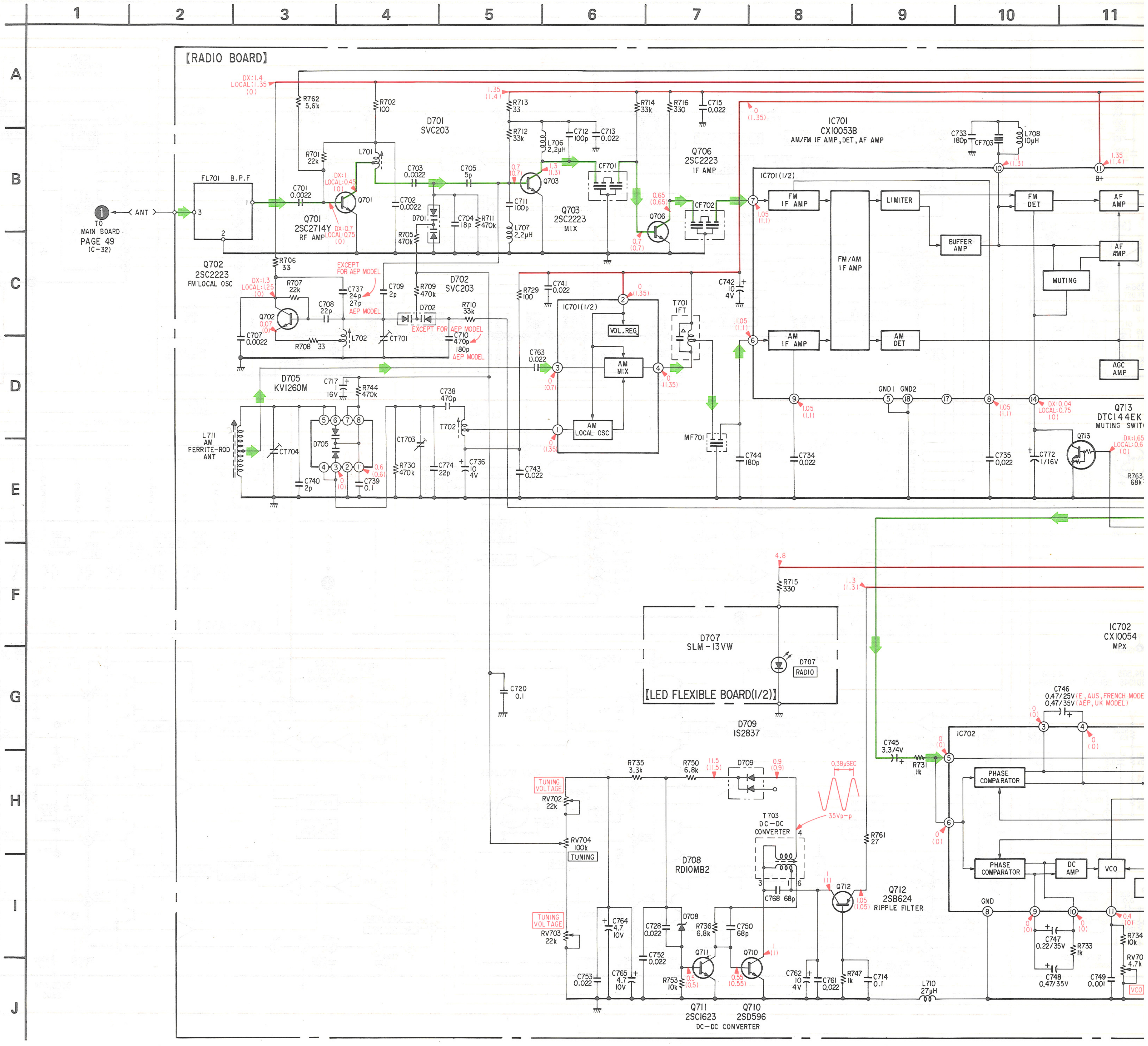

10
11
12
13
D707
RADIO
S701
MODE
MONO
STEREO
AEP, UK FRENCH MODEL
*1 (EXCEPT FOR AEP MODEL)
(AEP MODEL)
RV704
TUNING
JR707
C708 22p
Q702
JR749
R708 33
C707 0.0022
L702
C709 2p
C720 0.1
FL701 B.P.F
JR753
JR737
JR734
JR735
JR736
R-CH
L-CH
VCC
GND
ANT
D713
D714
D715
D716
D717
EXCEPT FOR UK MODEL
JR757 UK MODEL
S702
BAND
AM
FM/LOCAL
FM/DX
L705 27μH
JR745
E BOARD]
TO MAIN BOARD (SIDE A) PAGE 40 (G-1)
14
11

● SEMICONDUCTOR LOCATION

Ref. No.	Location
D701	H-9
D702	G-9
D705	H-2
D707	C-10
D708	J-3
D709	J-2
D710	H-7
D711	H-6
D712	I-7
D713	I-11
D714	I-11
D715	I-11
D716	I-11
D717	J-11
IC701	F-3
IC702	I-4
IC703	J 6
Q701	H-9
Q702	F-9
Q703	G-7
Q704	H-7
Q706	F-6
Q707	H-6
Q708	I-8
Q710	J-3
Q711	J-3
Q712	J-5
Q713	F-5

Note:
- ● ⊸— : parts extracted from the conductor side.
- ● ■ : part mounted on the conductor side.

4-4. SCHEMATIC DIAGRAM — RADIO SECTION —


1
2
3
4
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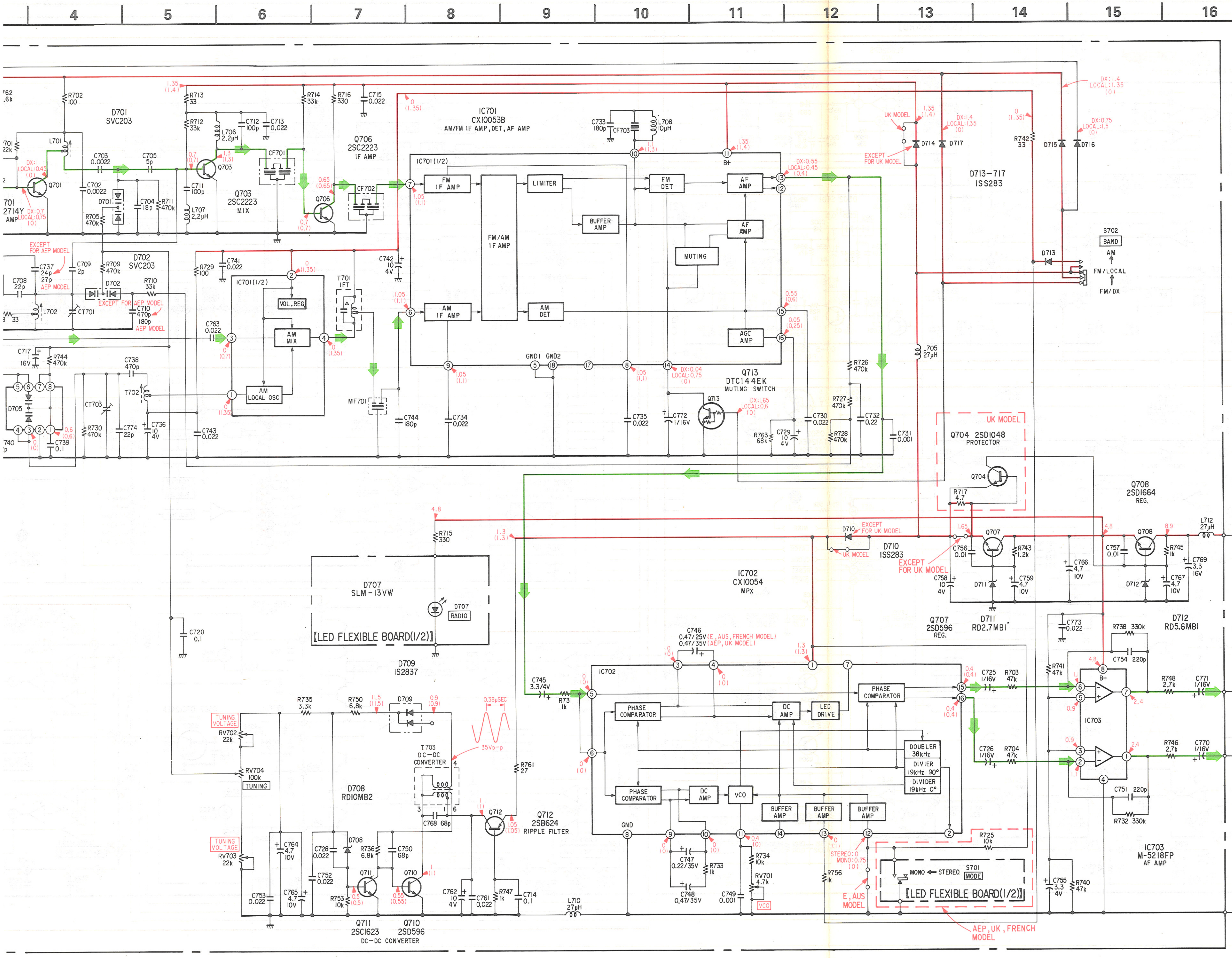
9
10
11
A
B
C
D
E
F
G
H
I
J
[RADIO BOARD]
TO MAIN BOARD PAGE 49 (C-32)
ANT
FL701 B.P.F
Q701 2SC2714Y RF AMP
D701 SVC203
Q703 2SC2223 MIX
Q706 2SC2223 IF AMP
CF701
CF702
IC701 CX10053B AM/FM IF AMP, DET, AF AMP
IC701 (1/2)
FM IF AMP
FM/AM IF AMP
LIMITER
BUFFER AMP
FM DET
AF AMP
MUTING
AM IF AMP
AM DET
AGC AMP
Q702 2SC2223 FM LOCAL OSC
D702 SVC203
EXCEPT FOR AEP MODEL
AEP MODEL
IC701 (1/2)
VOL. REG
AM MIX
AM LOCAL OSC
T701 IFT
D705 KV1260M
L711 AM FERRITE-ROD ANT
T702
MF701
Q713 DTC144EK MUTING SWITCH
D707 SLM-13VW
D707 RADIO
[LED FLEXIBLE BOARD(1/2)]
D709 1S2837
TUNING VOLTAGE
RV702 22k
RV704 100k TUNING
RV703 22k
D708 RD10MB2
T703 DC-DC CONVERTER
Q711 2SC1623
Q710 2SD596
DC-DC CONVERTER
Q712 2SB624 RIPPLE FILTER
IC702 CX10054 MPX
PHASE COMPARATOR
DC AMP
VCO
GND
L710 27μH
35Vp-p
0.38μSEC
C746 0.47/25V (E, AUS, FRENCH MODEL) 0.47/35V (AEP, UK MODEL)
B+


4
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12
13
14
15
16
17
18
19
A
B
C
D
E
F
G
H
I
J
D701 SVC203
Q701
L701
C703 0.0022
C705 5p
C702 0.0022
R705 470k
C704 18p
R711 470k
R702 100
R713 33
R712 33k
L706 2.2μH
C712 100p
C713 0.022
Q703 2SC2223 MIX
C711 100p
L707 2.2μH
CF701
R714 33k
R716 330
C715 0.022
Q706 2SC2223 IF AMP
CF702
IC701 CX10053B AM/FM IF AMP, DET, AF AMP
IC701 (1/2)
FM IF AMP
FM/AM IF AMP
LIMITER
BUFFER AMP
FM DET
AF AMP
AF AMP
MUTING
AM IF AMP
AM DET
AGC AMP
C733 180p
CF703
L708 10μH
B+
UK MODEL
EXCEPT FOR UK MODEL
D714
D717
R742 33
D715
D716
D713–717 ISS283
D713
S702 BAND
AM
FM/LOCAL
FM/DX
D702 SVC203
R709 470k
R710 33k
C709 2p
C737 24p
C708 22p
L702
CT701
C710 470p 180p
EXCEPT FOR AEP MODEL
AEP MODEL
R729 100
C741 0.022
IC701 (1/2)
VOL. REG
AM MIX
AM LOCAL OSC
C763 0.022
T701 IFT
C742 10 4V
C717 16V
R744 470k
C738 470p
T702
CT703
R730 470k
C774 22p
C736 10 4V
C739 0.1
C743 0.022
D705
MF701
C744 180p
C734 0.022
GND1 GND2
C735 0.022
C772 1/16V
Q713 DTC144EK MUTING SWITCH
R763 68k
C729 10 4V
C730 0.022
R726 470k
R727 470k
R728 470k
C732 0.22
C731 0.001
L705 27μH
UK MODEL
Q704 2SD1048 PROTECTOR
R717 4.7
Q708 2SD1664 REG.
L712 27μH
Vcc
② TO MAIN BOARD PAGE 49 (D-33)
R715 330
D707 SLM-13VW
D707 RADIO
[LED FLEXIBLE BOARD(1/2)]
D709 IS2837
D710
D710 ISS283
EXCEPT FOR UK MODEL
Q707
R743 1.2k
C756 0.01
C758 10 4V
D711
C759 4.7 10V
C766 4.7 10V
C757 0.01
R745 1k
C769 3.3 16V
D712
C767 4.7 10V
Q707 2SD596 REG.
D711 RD2.7MB1
D712 RD5.6MB1
IC702 CX10054 MPX
C746 0.47/25V (E, AUS, FRENCH MODEL) 0.47/35V (AEP, UK MODEL)
C745 3.3/4V
R731 1k
IC702
PHASE COMPARATOR
DC AMP
LED DRIVE
PHASE COMPARATOR
DOUBLER 38kHz
DIVIER 19kHz 90°
DIVIDER 19kHz 0°
PHASE COMPARATOR
DC AMP
VCO
BUFFER AMP
BUFFER AMP
BUFFER AMP
GND
C747 0.22/35V
R733 1k
C748 0.47/35V
C749 0.001
R734 10k
RV701 4.7k
VCO
R756 1k
E, AUS MODEL
STEREO: 0 MONO: 0.75
R725 10k
MONO ← STEREO
S701 MODE
[LED FLEXIBLE BOARD(1/2)]
AEP, UK, FRENCH MODEL
C725 1/16V
R703 47k
C726 1/16V
R704 47k
C773 0.022
R741 47k
R738 330k
C754 220p
IC703
R748 2.7k
C771 1/16V
L-CH
R746 2.7k
C770 1/16V
R-CH
③ TO MAIN BOARD PAGE 48 (C-26)
C751 220p
R732 330k
IC703 M-5218FP AF AMP
C755 3.3 4V
R740 47k
GND
④ TO MAIN BOARD PAGE 47 (F-17) PAGE 49 (F-33)
TUNING VOLTAGE
RV702 22k
RV704 100k
TUNING
TUNING VOLTAGE
RV703 22k
R735 3.3k
R750 6.8k
D709
0.38μSEC
35Vp-p
T703 DC-DC CONVERTER
C768 68p
R761 27
Q712
Q712 2SB624 RIPPLE FILTER
D708 RD10MB2
C764 4.7 10V
C753 0.022
C765 4.7 10V
C728 0.022
C752 0.022
D708
R736 6.8k
C750 68p
Q711
Q710
R753 10k
C762 10 4V
C761 0.022
R747 1k
C714 0.1
L710 27μH
Q711 2SC1623
Q710 2SD596
DC–DC CONVERTER

Note:

- All capacitors are in μF unless otherwise noted. pF: μμF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and ¼ W or less unless otherwise specified.
- △ : internal component.
- ➡ : FM signal path.
- ➡ : AM signal path.
- ▬ : B+ bus.
- ☐ : adjustment for repair.
- Power voltage is DC 9 V and fed with regulated dc power supply from DC in 9 V (external power voltage) jack. Voltages are DC with respect to ground under no-signal conditions when FUNCTION switch set to RADIO. Voltage variations may be noted due to normal production tolerances.
  no mark : FM
  ( ): AM
- Waveforms are taken to ground under no-signal conditions by using oscilloscope when FUNCTION switch set to RADIO. Voltage variations may be noted due to normal production tolerances.
- Switch

Ref. No.	Switch	Position
S701	MODE	STEREO
S702	BAND	FM/DX

SECTION 5

EXPLODED VIEWS AND PARTS LIST

NOTE:

- The mechanical parts with no reference number in the exploded views are not supplied.

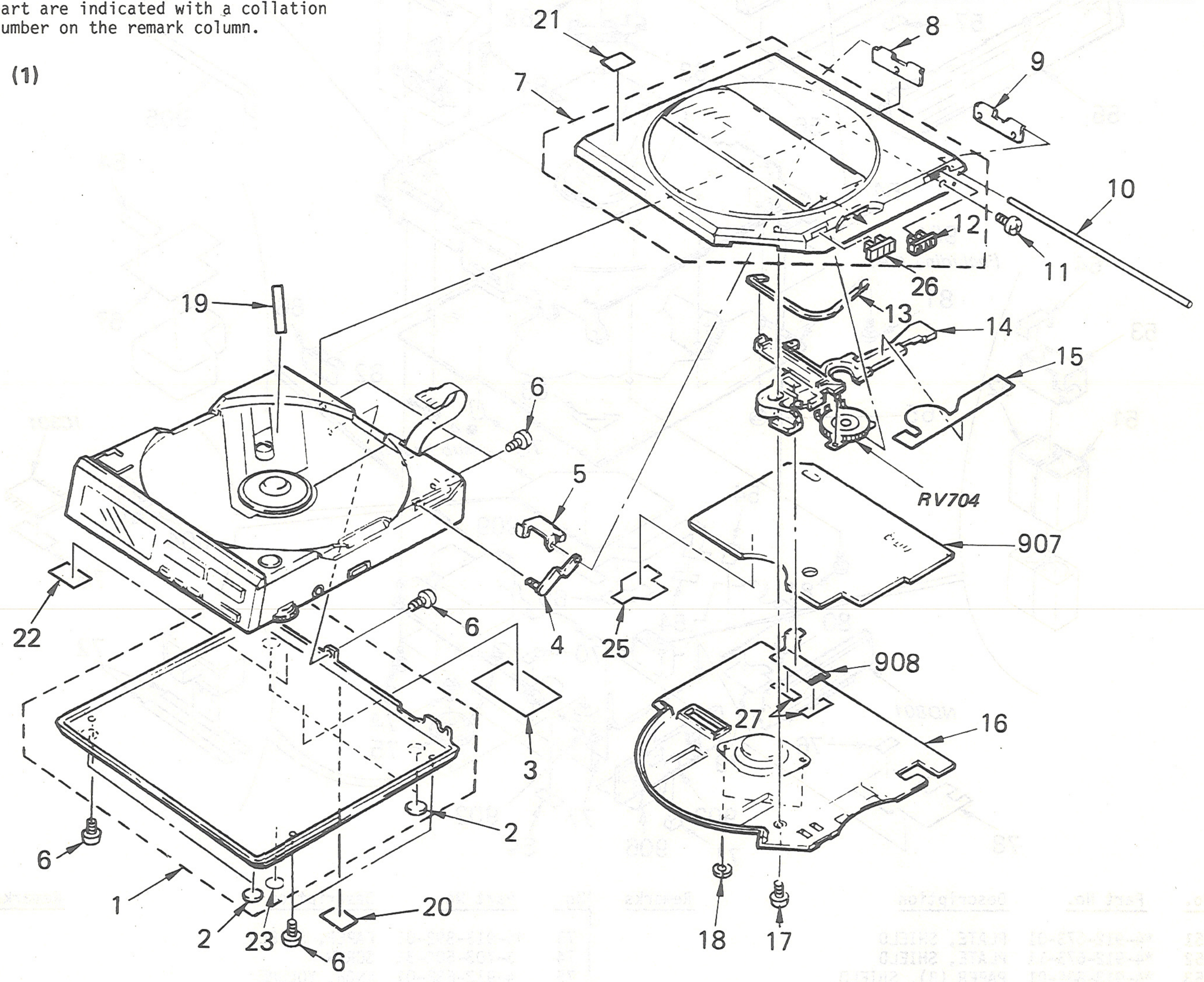
  Items marked " * " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

- The construction parts of an assembled part are indicated with a collation number on the remark column.

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

Les composants identifiés par une trame et une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

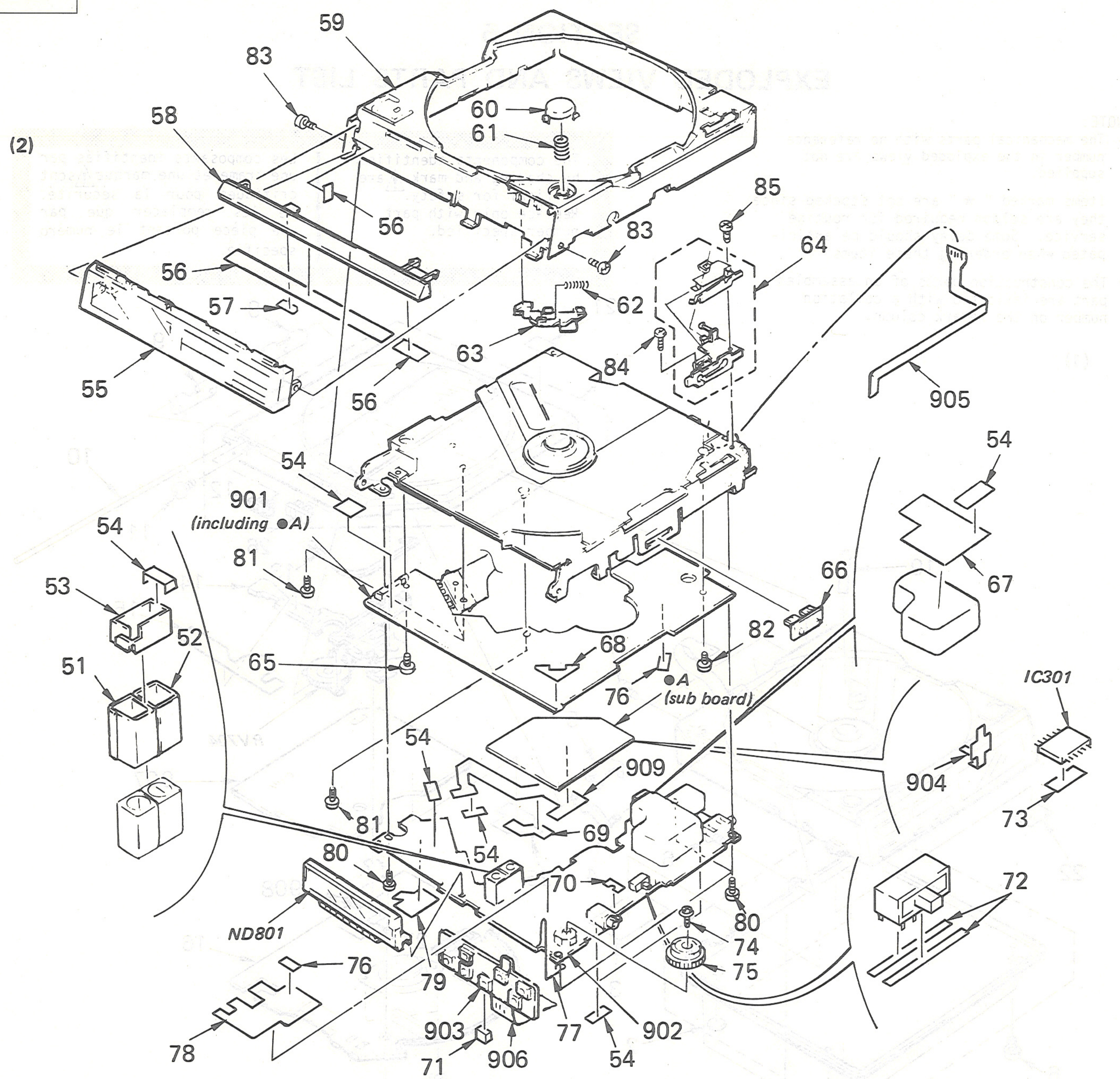
(1)



No.	Part No.	Description	Remarks
1	X-4907-027-1	PLATE ASSY, BOTTOM	
2	4-912-641-01	FOOT, RUBBER	
3	*4-885-838-00	(AEP,UK,FRENCH)...LABEL, CLASS 1	
4	X-4907-024-1	PLATE ASSY, SWITCHING	
5	X-4907-023-1	RETAINER ASSY, SPRING	
6	3-703-816-42	SCREW (M1.4X2.5), SPECIAL HEAD	
7	X-4912-034-1	(E,AUS).......PALEN, ASSY	
	X-4912-604-1	(AEP).........PALEN, ASSY	
	X-4912-605-2	(UK,FRENCH)...PANEL, ASSY	
8	4-907-030-11	PLATE, FULCRUM	
9	4-912-643-01	HINGE	
10	4-907-031-01	BAR, FULCRUM	
11	3-703-816-02	SCREW (M1.4X2.0), SPECIAL HEAD	
12	4-913-835-01	KNOB, SENSE	
13	4-913-837-01	RACK (CD), POINTER	
14	4-913-836-01	GUIDE, TU	
15	*4-913-878-01	SHEET, COVER	
16	X-4912-601-1	TU COVER ASSY	
17	3-703-816-72	SCREW (M1.4X3.0), SPECIAL HEAD	

No.	Part No.	Description	Remarks
18	3-312-434-00	WASHER, SLIT	
19	4-908-711-01	LABEL, CAUTION, LENS	
20	4-913-881-01	(UK,E,AUS,FRENCH)..LABEL, MODEL NUMBER(E)	
	4-913-894-01	(AEP)........LABEL, MODEL NUMBER	
21	3-703-710-01	STICKER, SONY SYMBOL (12)	
22	*4-916-601-01	(AEP)...LABEL, SP	
23	3-527-126-00	MARK, BATTERY CASE	
24	*4-913-874-01	HOLDER, ANTENNA	
25	*4-913-884-01	SHEET, SHIELD	
26	4-913-872-01	KNOB, STEREO SELECTION	
27	3-831-441-11	CUSHION (B)	
907	A-3089-188-A	(E,AUS)....MOUNTED PCB, RADIO	
	A-3089-209-A	(UK).......MOUNTED PCB, RADIO	
	A-3089-212-A	(AEP)......MOUNTED PCB, RADIO	
	A-3089-213-A	(FRENCH)...MOUNTED PCB, RADIO	
908	1-619-079-11	PC BOARD, LED FLEXIBLE	
L711	1-402-131-11	ANTENNA, FERRITE-ROD (MW)	
RV704	1-237-139-11	RES, VAR, CARBON 100K (TUNING)	

(2)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(including ●A)
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(sub board)
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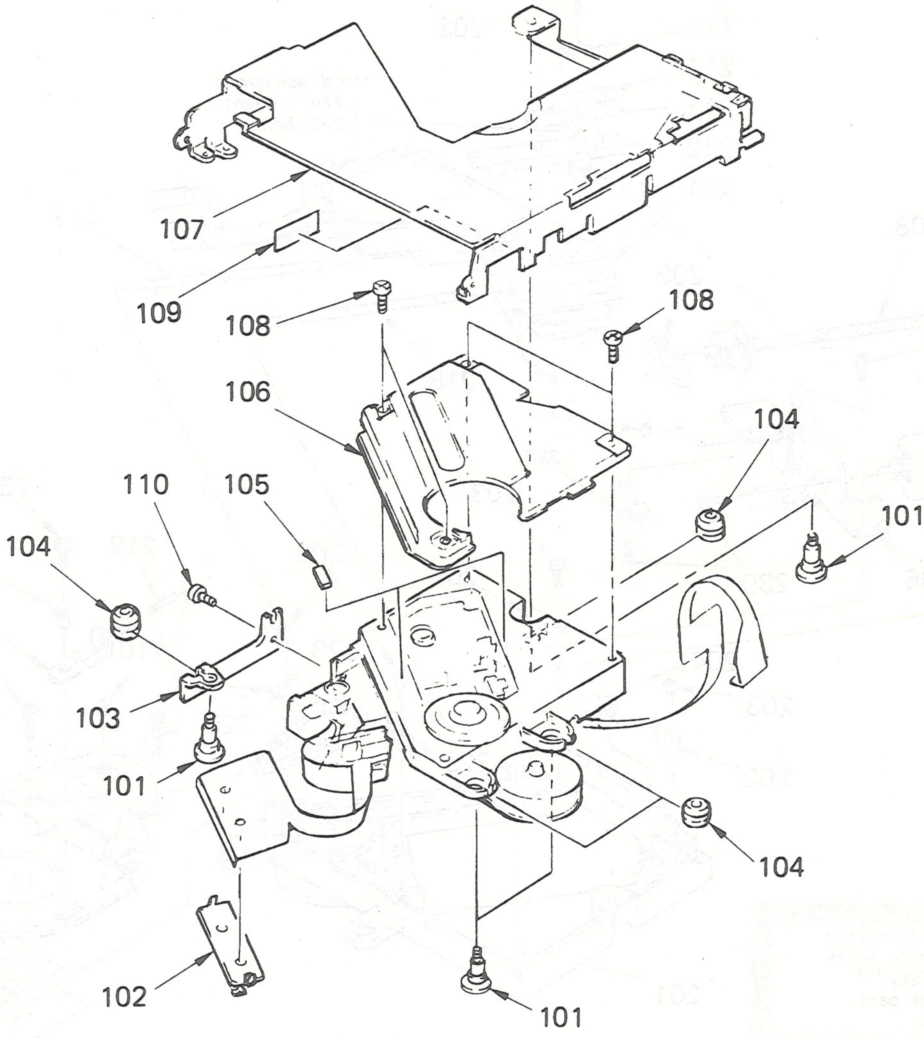
No.	Part No.	Description	Remarks
51	*4-912-673-01	PLATE, SHIELD	
52	*4-912-673-11	PLATE, SHIELD	
53	*4-913-889-01	PAPER (B), SHIELD	
54	3-831-441-11	CUSHION (B)	
55	X-4907-020-1	PANEL ASSY, FRONT	
56	*4-912-684-01	SHEET, INSULATING	
57	*4-912-686-01	SHEET, INSULATING	
58	4-912-625-11	STRIP, ORNAMENTAL	
59	4-912-634-31	CABINET	
60	4-912-626-01	BUTTON, OPEN	
61	4-912-611-01	SPRING, COMPRESSION	
62	4-912-610-01	SPRING, COMPRESSION	
63	4-912-628-01	PLATE, LOCK, SLIDE	
64	X-4907-025-1	BRACKET ASSY, SWITCHING	
65	4-912-652-01	SCREW (2X5), TAPPING	
66	4-912-623-01	KNOB, POWER	
67	*4-912-671-01	SHEET (UPPER), DD CAPACITOR	
68	*4-913-888-02	SHEET(B), INSULATING, PC BOARD	
69	*4-913-890-02	PAPER, SHIELD	
70	*4-913-893-01	SHEET, INSULATING, PC BOARD	
71	*3-329-460-01	SPACER	
72	*4-913-891-01	SHEET, INSULATING	
73	*4-913-892-01	PAPER, SHIELD	
74	3-703-502-31	SCREW	
75	4-912-638-01	KNOB, VOLUME	
76	3-831-441-XX	CUSHION, SPEAKER	
77	4-912-680-02	SPRING	
78	4-913-886-01	PAPER, SHIELD	
79	3-331-021-01	SHEET, INSULATING	
80	3-703-816-41	SCREW (M1.4X2.5), SPECIAL HEAD	
81	3-703-816-31	SCREW (M1.4X1.6), SPECIAL HEAD	
82	7-685-103-14	SCREW +P 2X5 TYPE2 NON-SLIT	
83	3-703-816-72	SCREW (M1.4X3.0), SPECIAL HEAD	
84	3-703-816-32	SCREW (M1.4X1.6), SPECIAL HEAD	
85	3-703-816-01	SCREW (M1.4X2.0), SPECIAL HEAD	
901	A-3015-443-A	(AEP,E,AUS,FRENCH)...PC BOARD ASSY, SERVO	
	A-3015-445-A	(UK)..................PC BOARD ASSY, SERVO	
902	A-3015-411-A	(AEP,E,AUS,FRENCH)...PC BOARD ASSY, MAIN	
	A-3015-451-A	(UK)..................PC BOARD ASSY, MAIN	
903	*1-619-124-11	PC BOARD, SW	
904	*1-535-511-11	FRAME, LEAD (F TYPE)	
905	1-618-847-11	PC BOARD, TU FLEXIBLE	
906	1-618-849-11	PC BOARD, SW FLEXIBLE	
909	1-618-965-11	PC BOARD, CONNECTION FLEXIBLE	
ND801	1-807-331-11	MODULE, LCD	

(3)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No.	Part No.	Description	Remarks	No.	Part No.	Description	Remarks
101	4-908-754-11	SCREW		106	4-912-651-01	COVER, MD	
102	*4-912-608-01	RETAINER, FLEXIBLE		107	X-4907-026-2	CHASSIS ASSY	
103	4-907-039-01	HOLDER (A), INSULATOR		108	3-893-942-11	SCREW (1.7X3), TAPPING (B)	
104	4-908-755-01	INSULATOR (2001)		109	3-331-021-01	SHEET, INSULATING	
105	9-911-837-XX	SPACER		110	7-627-553-38	SCREW, PRECISION +P 2X3	

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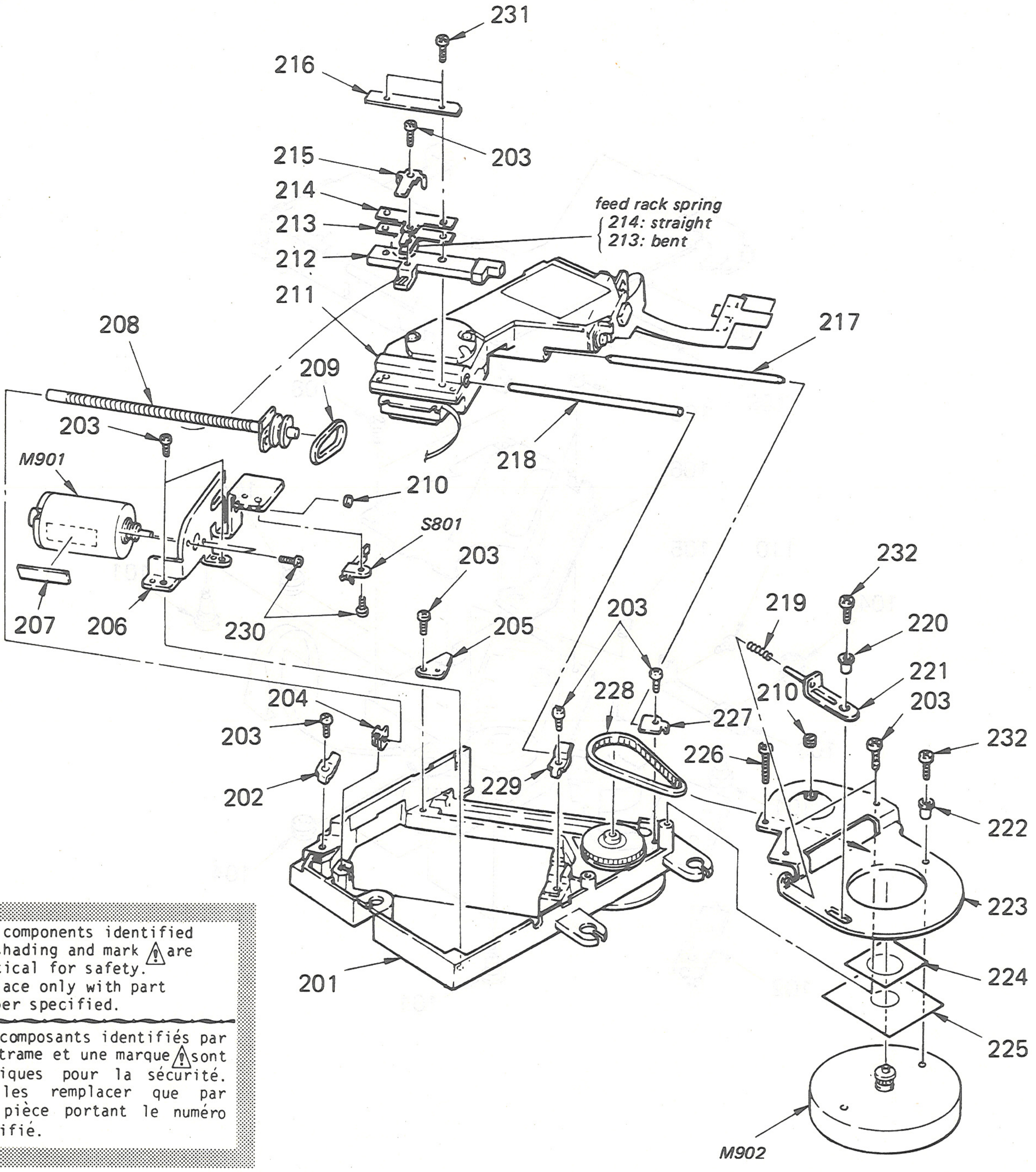
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feed rack spring
214: straight
213: bent
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S801
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The components identified by shading and mark ⚠ are critical for safety.
Replace only with part number specified.

Les composants identifiés par une trame et une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

No.	Part No.	Description	Remarks
201	X-4912-408-1	CHASSIS ASSY, MD	
202	3-320-134-01	RETAINER (B1)	
203	3-316-938-81	SCREW (B1.4X5) (G), TAPPING	
204	4-912-409-01	RETAINER, FEED THRUST	
205	3-320-104-01	RETAINER (C)	
206	*4-912-410-01	DISK, FEED	
207	3-831-441-11	CUSHION (B)	
208	X-4912-403-1	SCREW ASSY, FEED	
209	4-912-429-01	BELT	
210	2-622-801-01	RETAINER, THRUST	
211 ⚠	.X-4912-409-1	PICK-UP ASSY (KSS-110G)	
212	4-912-412-01	RACK, FEED	
213	4-912-423-11	SPRING	
214	4-912-423-01	SPRING	
215	4-912-416-01	RETAINER, SCREW	
216	3-320-133-01	SPACER, RACK	
217	3-320-136-01	SHAFT (A1)	
218	3-320-107-01	SHAFT (B)	
219	4-912-424-01	SPRING, COMPRESSION	
220	4-912-422-01	COLLAR (B)	
221	X-4912-406-1	PLATE ASSY, ADJUSTMENT, MOTOR	
222	4-912-421-01	COLLAR (A)	
223	*4-912-408-01	BRACKET, MOTOR	
224	*4-912-428-01	SHEET, ADHESIVE, SHEET	
225	*4-912-427-02	SHEET, MOTOR	
226	3-320-138-51	SCREW (B1.4X12), TAPPING	
227	3-320-105-01	RETAINER (D)	
228	4-912-401-01	BELT, TOOTH	
229	3-320-135-01	RETAINER (A1)	
230	7-627-553-27	SCREW, PRECISION +P 2X2.5	
231	7-627-557-07	SCREW, PRECISION +P 1.7X5.5	
232	7-627-552-48	SCREW, PRECISION +P 1.7X4	
904	*1-535-511-11	FRAME, LEAD (F TYPE)	
M901	1-541-318-11	MOTOR	
M902	X-4912-407-1	MOTOR ASSY, CLV	
S801	1-553-198-00	SWITCH, LEAF	

SECTION 6

ELECTRICAL PARTS LIST

NOTE:

- Items marked " * " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- If there are two or more same circuitsin a set such as a stereophonic machine, only typical circuit parts may be indicated and capacitors and resistors in other same circuits may be omitted.

CAPACITORS:
MF:μF, PF:μμF.

RESISTORS
- All resistors are in ohms.
- F : nonflammable

COILS
- MMH : mH, UH : μH

SEMICONDUCTORS
In each case, U : μ, for example:
UA...: μA..., UPA...: μPA..., UPC...: μPC, UPD...: μPD...

The components identified by shading and mark ⚠ are critical for safety.
Replace only with part number specified.

Les composants identifiés par une trame et une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

ELECTRICAL PARTS

Ref.No.	Part No.	Description		
901	A-3015-443-A	(AEP,E,AUS,FRENCH)..PC BOARD ASSY, SERVO		
	A-3015-445-A	(UK)....PC BOARD ASSY, SERVO		
902	A-3015-411-A	(AEP,E,AUS,FRENCH)..PC BOARD ASSY, MAIN		
	A-3015-451-A	(UK).....PC BOARD ASSY, MAIN		
903	*1-619-124-11	PC BOARD, SW		
904	*1-535-511-11	FRAME, LEAD (F TYPE)		
905	1-618-847-11	PC BOARD, TU FLEXIBLE		
906	1-618-849-11	PC BOARD, SW FLEXIBLE		
907	A-3089-188-A	(E,AUS)....MOUNTED PCB, RADIO		
	A-3089-209-A	(UK).......MOUNTED PCB, RADIO		
	A-3089-212-A	(AEP)......MOUNTED PCB, RADIO		
	A-3089-213-A	(FRENCH)...MOUNTED PCB, RADIO		
908	1-619-079-11	PC BOARD, LED FLEXIBLE		
909	1-618-965-11	PC BOARD, CONNECTION FLEXIBLE		
C2	1-163-117-00	CERAMIC CHIP 100PF	5%	50V
C3	1-163-117-00	CERAMIC CHIP 100PF	5%	50V
C4	1-163-085-00	CERAMIC CHIP 2PF	0.25PF	50V
C5	1-163-038-00	CERAMIC CHIP 0.1MF		25V
C6	1-123-661-00	ELECT 100MF	20%	6.3V
C7	1-124-229-00	ELECT 33MF	20%	6.3V
C8	1-163-123-00	CERAMIC CHIP 180PF	5%	50V
C9	1-163-123-00	CERAMIC CHIP 180PF	5%	50V
C10	1-163-074-00	CERAMIC CHIP 0.033MF	10%	25V
C11	1-135-100-21	TANTAL. CHIP 6.8MF	20%	6.3V
C12	1-124-229-00	ELECT 33MF	20%	6.3V
C14	1-163-038-00	CERAMIC CHIP 0.1MF		25V
C15	1-163-038-00	CERAMIC CHIP 0.1MF		25V
C16	1-163-038-00	CERAMIC CHIP 0.1MF		25V
C17	1-163-141-00	CERAMIC CHIP 0.001MF	10%	50V
C18	1-163-109-00	CERAMIC CHIP 47PF	5%	50V
C19	1-163-038-00	CERAMIC CHIP 0.1MF		25V
C20	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V
C21	1-163-038-00	CERAMIC CHIP 0.1MF		25V
C22	1-163-117-00	CERAMIC CHIP 100PF	5%	50V
C23	1-124-778-00	ELECT 22MF	20%	6.3V
C101	1-163-188-00	CERAMIC CHIP 200PF	5%	50V
C103	1-163-335-11	CERAMIC CHIP 0.001MF	5%	50V
C104	1-163-335-11	CERAMIC CHIP 0.001MF	5%	50V
C105	1-163-108-00	CERAMIC CHIP 43PF	5%	50V
C106	1-163-211-00	CERAMIC CHIP 0.0018MF	5%	50V
C107	1-163-335-11	CERAMIC CHIP 0.001MF	5%	50V
C108	1-163-108-00	CERAMIC CHIP 43PF	5%	50V
C109	1-130-479-00	MYLAR 0.0047MF	5%	50V
C110	1-130-480-00	MYLAR 0.0056MF	5%	50V
C111	1-130-477-00	MYLAR 0.0033MF	5%	50V

ELECTRICAL PARTS

Ref.No.	Part No.	Description		
C112	1-135-096-21	TANTAL. CHIP 4.7MF	20%	10V
C113	1-135-096-21	TANTAL. CHIP 4.7MF	20%	10V
C114	1-135-096-21	TANTAL. CHIP 4.7MF	20%	10V
C115	1-124-245-00	ELECT 4.7MF	20%	16V
C116	1-124-443-00	ELECT 100MF	20%	10V
C117	1-124-239-00	ELECT 6.8MF	20%	10V
C118	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V
C119	1-163-117-00	CERAMIC CHIP 100PF	5%	50V
C201	1-163-188-00	CERAMIC CHIP 200PF	5%	50V
C203	1-163-335-11	CERAMIC CHIP 0.001MF	5%	50V
C204	1-163-335-11	CERAMIC CHIP 0.001MF	5%	50V
C205	1-163-108-00	CERAMIC CHIP 43PF	5%	50V
C206	1-163-211-00	CERAMIC CHIP 0.0018MF	5%	50V
C207	1-163-335-11	CERAMIC CHIP 0.001MF	5%	50V
C208	1-163-108-00	CERAMIC CHIP 43PF	5%	50V
C209	1-130-479-00	MYLAR 0.0047MF	5%	50V
C210	1-130-480-00	MYLAR 0.0056MF	5%	50V
C211	1-130-477-00	MYLAR 0.0033MF	5%	50V
C212	1-135-096-21	TANTAL. CHIP 4.7MF	20%	10V
C213	1-135-096-21	TANTAL. CHIP 4.7MF	20%	10V
C214	1-135-096-21	TANTAL. CHIP 4.7MF	20%	10V
C215	1-124-245-00	ELECT 4.7MF	20%	16V
C216	1-124-443-00	ELECT 100MF	20%	10V
C217	1-124-239-00	ELECT 6.8MF	20%	10V
C218	1-163-059-00	CERAMIC CHIP 0.01MF	10%	50V
C219	1-162-282-00	CERAMIC 100PF		50V
C301	1-124-257-00	ELECT 2.2MF	20%	35V
C302	1-135-092-21	TANTAL. CHIP 3.3MF	20%	16V
C303	1-135-096-21	TANTAL. CHIP 4.7MF	20%	10V
C304	1-124-245-00	ELECT 4.7MF	20%	16V
C305	1-163-038-00	CERAMIC CHIP 0.1MF		25V
C306	1-135-096-21	TANTAL. CHIP 4.7MF	20%	10V
C307	1-135-096-21	TANTAL. CHIP 4.7MF	20%	10V
C308	1-124-258-00	(AEP,E,AUS,FRENCH)... ELECT 3.3MF	20%	25V
C308	1-135-092-21	(UK)...TANTAL. CHIP 3.3MF	20%	16V
C309	1-135-091-00	TANTAL. CHIP 1MF	20%	16V
C310	1-163-038-00	CERAMIC CHIP 0.1MF		25V
C311	1-124-234-00	ELECT 22MF	20%	16V
C312	1-135-092-21	TANTAL. CHIP 3.3MF	20%	16V
C313	1-163-117-00	CERAMIC CHIP 100PF	5%	50V
C314	1-163-117-00	CERAMIC CHIP 100PF	5%	50V
C315	1-135-100-21	TANTAL. CHIP 6.8MF	20%	6.3V
C316	1-135-100-21	TANTAL. CHIP 6.8MF	20%	6.3V
C317	1-163-109-00	CERAMIC CHIP 47PF	5%	50V

ELECTRICAL PARTS

Ref.No.	Part No.	Description		
C401	1-163-017-00	CERAMIC CHIP 0.0047MF	10%	50V
C402	1-123-321-00	ELECT 220MF	20%	16V
C403	1-124-445-00	ELECT 100MF	20%	16V
C404	1-124-470-11	ELECT 470MF	20%	6.3V
C405	1-124-470-11	ELECT 470MF	20%	6.3V
C406	1-124-234-00	ELECT 22MF	20%	16V
C407	1-124-224-00	ELECT 47MF	20%	6.3V
C408	1-124-224-00	ELECT 47MF	20%	6.3V
C409	1-124-224-00	ELECT 47MF	20%	6.3V
C410	1-163-117-00	CERAMIC CHIP 100PF	5%	50V
C411	1-124-257-00	ELECT 2.2MF	20%	50V
C412	1-124-234-00	ELECT 22MF	20%	16V
C413	1-124-257-00	ELECT 2.2MF	20%	50V
C414	1-124-257-00	ELECT 2.2MF	20%	50V
C415	1-124-258-00	ELECT 3.3MF	20%	25V
C416	1-135-092-21	(UK)...TANTAL. CHIP 3.3MF	20%	16V
C417	1-124-234-00	(UK)...ELECT 22MF	20%	16V
C418	1-163-038-00	CERAMIC CHIP 0.1MF		25V
C501	1-135-100-21	TANTAL. CHIP 6.8MF	20%	6.3V
C502	1-135-101-21	TANTAL. CHIP 22MF	10%	6.3V
C503	1-135-100-21	TANTAL. CHIP 6.8MF	20%	6.3V
C504	1-163-081-00	CERAMIC CHIP 0.22MF		25V
C505	1-163-033-00	CERAMIC CHIP 0.022MF	10%	25V
C506	1-163-075-00	CERAMIC CHIP 0.047MF	10%	25V
C507	1-163-079-00	CERAMIC CHIP 0.039MF	10%	25V
C508	1-163-114-00	CERAMIC CHIP 75PF	5%	50V
C509	1-163-109-00	CERAMIC CHIP 47PF	5%	50V
C510	1-163-081-00	CERAMIC CHIP 0.22MF		25V
C511	1-135-104-00	TANTAL. CHIP 10MF	20%	4V
C512	1-163-124-00	CERAMIC CHIP 200PF	5%	50V
C513	1-163-033-00	CERAMIC CHIP 0.022MF	10%	25V
C514	1-163-075-00	CERAMIC CHIP 0.047MF	10%	25V
C515	1-163-019-00	CERAMIC CHIP 0.0068MF	10%	50V
C516	1-163-013-00	CERAMIC CHIP 0.0022MF	10%	50V
C517	1-162-610-00	CERAMIC CHIP 0.47MF		25V
C519	1-163-079-00	CERAMIC CHIP 0.039MF	10%	25V
C520	1-163-023-00	CERAMIC CHIP 0.015MF	10%	50V
C521	1-124-778-00	ELECT 22MF	20%	6.3V
C522	1-135-100-21	TANTAL. CHIP 6.8MF	20%	6.3V
C523	1-163-017-00	CERAMIC CHIP 0.0047MF	10%	50V
C524	1-124-779-00	ELECT 10MF	20%	16V
C525	1-163-081-00	CERAMIC CHIP 0.22MF		25V
C526	1-163-133-00	CERAMIC CHIP 470PF	5%	50V
C527	1-163-141-00	CERAMIC CHIP 0.001MF	10%	50V
C529	1-163-017-00	CERAMIC CHIP 0.0047MF	10%	50V
C530	1-124-779-00	ELECT 10MF	20%	16V
C531	1-163-081-00	CERAMIC CHIP 0.22MF		25V
C532	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V
C533	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V
C534	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V
C535	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V
C536	1-135-091-00	TANTAL. CHIP 1MF	20%	16V
C537	1-163-081-00	CERAMIC CHIP 0.22MF		25V
C538	1-124-778-00	ELECT 22MF	20%	6.3V
C539	1-135-083-00	TANTAL. CHIP 0.47MF	10%	25V
C540	1-163-038-00	CERAMIC CHIP 0.1MF		25V
C541	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V

ELECTRICAL PARTS

Ref.No.	Part No.	Description		
C542	1-163-033-00	CERAMIC CHIP 0.022MF	10%	25V
C543	1-135-096-21	TANTAL. CHIP 4.7MF	10%	10V
C601	1-163-038-00	CERAMIC CHIP 0.1MF		25V
C602	1-163-101-00	CERAMIC CHIP 22PF	5%	50V
C603	1-163-101-00	CERAMIC CHIP 22PF	5%	50V
C604	1-163-038-00	CERAMIC CHIP 0.1MF		25V
C605	1-135-091-00	TANTAL. CHIP 1MF	20%	16V
C606	1-163-113-00	CERAMIC CHIP 68PF	5%	50V
C607	1-135-100-21	TANTAL. CHIP 6.8MF	20%	6.3V
C608	1-163-033-00	CERAMIC CHIP 0.022MF	10%	25V
C609	1-163-105-00	CERAMIC CHIP 33PF	5%	50V
C610	1-163-105-00	CERAMIC CHIP 33PF	5%	50V
C611	1-163-123-00	CERAMIC CHIP 180PF	5%	50V
C612	1-163-074-00	CERAMIC CHIP 0.033MF	10%	25V
C613	1-163-074-00	CERAMIC CHIP 0.033MF	10%	25V
C614	1-131-375-00	TANTALUM 4.7MF	10%	10V
C615	1-124-229-00	ELECT 33MF	20%	6.3V
C616	1-124-229-00	ELECT 33MF	20%	6.3V
C617	1-131-375-00	TANTALUM 4.7MF	10%	10V
C618	1-163-209-00	CERAMIC CHIP 0.0015MF	10%	50V
C619	1-163-021-00	CERAMIC CHIP 0.01MF	5%	50V
C620	1-163-021-00	CERAMIC CHIP 0.01MF	5%	50V
C621	1-163-060-00	CERAMIC CHIP 0.012MF	10%	50V
C622	1-163-060-00	CERAMIC CHIP 0.012MF	10%	50V
C623	1-163-021-00	CERAMIC CHIP 0.01MF	5%	50V
C624	1-163-117-00	CERAMIC CHIP 100PF	5%	50V
C701	1-163-013-00	CERAMIC CHIP 0.0022MF	10%	50V
C702	1-163-013-00	CERAMIC CHIP 0.0022MF	10%	50V
C703	1-163-013-00	CERAMIC CHIP 0.0022MF	10%	50V
C704	1-163-099-00	CERAMIC CHIP 18PF	5%	50V
C705	1-163-088-00	CERAMIC CHIP 5PF	0.25PF	50V
C707	1-163-013-00	CERAMIC CHIP 0.0022MF	10%	50V
C708	1-163-101-00	CERAMIC CHIP 22PF	5%	50V
C709	1-163-085-00	CERAMIC CHIP 2PF	0.25PF	50V
C710	1-163-123-00	(AEP)...CERAMIC CHIP 180PF	5%	50V
C710	1-163-133-00	(UK,E,AUS,FRENCH)... CERAMIC CHIP 470PF	5%	50V
C711	1-163-117-00	CERAMIC CHIP 100PF	5%	50V
C712	1-163-117-00	CERAMIC CHIP 100PF	5%	50V
C713	1-163-033-00	CERAMIC CHIP 0.022MF	10%	25V
C714	1-163-038-00	CERAMIC CHIP 0.1MF		25V
C715	1-163-033-00	CERAMIC CHIP 0.022MF	10%	25V
C717	1-135-091-00	TANTAL. CHIP 1MF	20%	16V
C720	1-163-077-00	CERAMIC CHIP 0.1MF	10%	25V
C725	1-135-091-00	TANTAL. CHIP 1MF	20%	16V
C726	1-135-091-00	TANTAL. CHIP 1MF	20%	16V
C728	1-163-033-00	CERAMIC CHIP 0.022MF	10%	25V
C729	1-135-104-00	TANTAL. CHIP 10MF	20%	4V
C730	1-163-033-00	CERAMIC CHIP 0.022MF	10%	25V
C731	1-163-141-00	CERAMIC CHIP 0.001MF	10%	50V
C732	1-163-081-00	CERAMIC CHIP 0.22MF		25V
C733	1-163-123-00	CERAMIC CHIP 180PF	5%	50V
C734	1-163-033-00	CERAMIC CHIP 0.022MF	10%	25V
C735	1-163-033-00	CERAMIC CHIP 0.022MF	10%	25V
C736	1-135-104-00	TANTAL. CHIP 10MF	20%	4V
C737	1-163-102-00	(UK,E,AUS,FRENCH)... CERAMIC CHIP 24PF	5%	50V
C737	1-163-592-91	(AEP)...CERAMIC CHIP 27PF	5%	50V

ELECTRICAL PARTS

Ref.No.	Part No.	Description		
C738	1-163-133-00	CERAMIC CHIP 470PF	5%	50V
C739	1-163-038-00	CERAMIC CHIP 0.1MF		25V
C740	1-163-085-00	CERAMIC CHIP 2PF	0.25PF	50V
C741	1-163-033-00	CERAMIC CHIP 0.022MF	10%	25V
C742	1-135-104-00	TANTAL. CHIP 10MF	20%	4V
C743	1-163-033-00	CERAMIC CHIP 0.022MF	10%	25V
C744	1-163-123-00	CERAMIC CHIP 180PF	5%	50V
C745	1-135-103-00	TANTAL. CHIP 3.3MF	20%	4V
C746	1-135-074-21	(AEP,UK)...TANTAL. CHIP 0.47MF	20%	35V
C746	1-135-083-00	(E,AUS,FRENCH).... TANTAL. CHIP 0.47MF	20%	25V
C747	1-135-072-21	TANTAL. CHIP 0.22MF	10%	35V
C748	1-135-074-21	TANTAL. CHIP 0.47MF	10%	35V
C749	1-163-335-11	CERAMIC CHIP 0.001MF	5%	50V
C750	1-163-113-00	CERAMIC CHIP 68PF	5%	50V
C751	1-163-125-00	CERAMIC CHIP 220PF	5%	50V
C752	1-163-033-00	CERAMIC CHIP 0.022MF	10%	25V
C753	1-163-033-00	CERAMIC CHIP 0.022MF	10%	25V
C754	1-163-125-00	CERAMIC CHIP 220PF	5%	50V
C755	1-135-103-00	TANTAL. CHIP 3.3MF	20%	4V
C756	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V
C757	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V
C758	1-135-104-00	TANTAL. CHIP 10MF	20%	4V
C759	1-135-096-21	TANTAL. CHIP 4.7MF	20%	10V
C761	1-163-033-00	CERAMIC CHIP 0.022MF	10%	25V
C762	1-135-104-00	TANTAL. CHIP 10MF	20%	4V
C763	1-163-033-00	CERAMIC CHIP 0.022MF	10%	25V
C764	1-135-096-21	TANTAL. CHIP 4.7MF	20%	10V
C765	1-135-096-21	TANTAL. CHIP 4.7MF	20%	10V
C766	1-135-096-21	TANTAL. CHIP 4.7MF	20%	10V
C767	1-135-096-21	TANTAL. CHIP 4.7MF	20%	10V
C768	1-163-113-00	CERAMIC CHIP 68PF	5%	50V
C769	1-135-092-21	TANTAL. CHIP 3.3MF	20%	16V
C770	1-135-091-00	TANTAL. CHIP 1MF	20%	16V
C771	1-135-091-00	TANTAL. CHIP 1MF	20%	16V
C772	1-135-091-00	TANTAL. CHIP 1MF	20%	16V
C773	1-163-033-00	CERAMIC CHIP 0.022MF	10%	25V
C774	1-163-101-00	CERAMIC CHIP 22PF	5%	50V
C801	1-163-105-00	CERAMIC CHIP 33PF	5%	50V
C802	1-163-077-00	CERAMIC CHIP 0.1MF		50V
C804	1-163-141-00	CERAMIC CHIP 0.001MF	5%	50V
CF701	1-567-338-65	FILTER, CERAMIC		
CF702	1-567-338-65	FILTER, CERAMIC		
CF703	1-567-338-65	FILTER, CERAMIC		
CN401	1-563-294-11	JACK, EXTERNAL POWER (DC IN 9V)		
CN801	1-563-329-11	HOUSING, CONNECTOR 17P		
CNJ401	1-535-608-11	TERMINAL, BATTERY		
CP401⚠	1-464-572-11	CONVERTER UNIT, DC-DC		
CT701	1-141-333-11	CAP, VAR, TRIMMER		
CT703	1-141-333-11	CAP, VAR, TRIMMER		
CT704	1-141-333-11	CAP, VAR, TRIMMER		
D1	8-719-100-23	DIODE 1SS123		
D301	8-719-100-03	DIODE 1S2835		
D402	8-719-100-03	DIODE 1S2835		
D403	8-719-200-35	DIODE E10QS03		
D405	8-719-100-03	DIODE 1S2835		
D406	8-719-101-58	(UK)...DIODE RD5.6E-L2		
D407	8-719-911-19	DIODE 1SS119		

ELECTRICAL PARTS

Ref.No.	Part No.	Description
D408	8-719-127-07	(UK)...DIODE RD2.7E-B
D501	8-719-100-23	DIODE 1SS123
D502	8-719-938-72	DIODE SB01-05CP
D503	8-719-938-75	DIODE SB05-05CP
D504	8-719-938-75	DIODE SB05-05CP
D505	8-719-938-75	DIODE SB05-05CP
D506	8-719-938-75	DIODE SB05-05CP
D507	8-719-938-75	DIODE SB05-05CP
D508	8-719-938-75	DIODE SB05-05CP
D601	8-719-927-77	DIODE KV1230Z
D701	8-719-908-57	DIODE SVC203
D702	8-719-908-57	DIODE SVC203
D705	8-719-100-05	DIODE KV1260M
D707	8-719-928-16	DIODE SLM-13VW
D708	8-719-106-53	DIODE RD10M-B2
D709	8-719-100-05	DIODE 1S2837
D710	8-719-118-21	(AEP,E,AUS,FRENCH)...DIODE 1SS283
D711	8-719-105-32	DIODE RD2.7M-B2
D712	8-719-105-90	DIODE RD5.6M-B1
D713	8-719-118-21	DIODE 1SS283
D715	8-719-118-21	DIODE 1SS283
D716	8-719-118-21	DIODE 1SS283
D717	8-719-118-21	DIODE 1SS283
D801	8-719-100-03	DIODE 1S2835
D802	8-719-100-05	DIODE 1S2837
D803	8-719-100-03	DIODE 1S2835
FL101	1-235-403-11	FILTER, LOW PASS
FL201	1-235-403-11	FILTER, LOW PASS
FL701	1-235-279-00	FILTER, BAND PASS
IC1	8-752-010-90	IC CX20109
IC2	8-759-100-96	IC UPC4558G2
IC101	8-759-603-27	IC M5201FP
IC102	8-759-745-64	IC NJM4560M
IC201	8-759-603-27	IC M5201FP
IC202	8-759-745-64	IC NJM4560M
IC301	8-759-924-49	IC PCM55HP-S
IC302	8-759-103-25	IC UPD4053BG
IC303	8-759-908-16	IC TL072CPS
IC304	8-759-745-56	IC NJM4556D
IC401	8-759-914-44	IC TL431CLPB
IC501	8-752-030-56	IC CXA1023M
IC502	8-759-924-58	IC CXA1083M
IC503	8-759-924-58	IC CXA1083M
IC504	8-759-100-96	IC UPC4558G2
IC601	8-759-912-52	IC CX23035
IC602	8-752-320-44	IC CXK5816M-10L
IC603	8-759-103-09	IC UPC4082G2
IC604	8-759-100-96	IC UPC4558G2
IC701	8-759-923-96	IC CX10053B
IC702	8-759-910-53	IC CX10054
IC703	8-759-603-13	IC M5218FP
IC801	8-752-800-61	IC CXP5024H-003Q
IC802	8-759-912-55	IC S-81250HG
IC803	8-759-700-07	IC NJM2903M
J301	1-563-281-11	JACK (LINE OUT)
J302	1-563-280-11	JACK (PHONES)

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

Les composants identifiés par une trame et une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

ELECTRICAL PARTS

Ref.No.	Part No.	Description
JR401	1-216-295-00	(AEP,E,AUS,FRENCH) ...METAL CHIP 0 5% 1/10W
JR403	1-216-295-00	(AEP,E,AUS,FRENCH) ...METAL CHIP 0 5% 1/10W
JR404	1-216-295-00	(AEP,E,AUS,FRENCH) ...METAL CHIP 0 5% 1/10W
JR405	1-216-295-00	(UK)...METAL CHIP 0 5% 1/10W
JR501	1-216-295-00	METAL CHIP 0 5% 1/10W
JR701	1-216-295-00	METAL CHIP 0 5% 1/10W
JR702	1-216-295-00	METAL CHIP 0 5% 1/10W
JR703	1-216-295-00	METAL CHIP 0 5% 1/10W
JR707	1-216-296-00	METAL CHIP 0 5% 1/8W
JR708	1-216-296-00	METAL CHIP 0 5% 1/8W
JR709	1-216-296-00	METAL CHIP 0 5% 1/8W
JR710	1-216-295-00	METAL CHIP 0 5% 1/10W
JR711	1-216-295-00	METAL CHIP 0 5% 1/10W
JR712	1-216-295-00	METAL CHIP 0 5% 1/10W
JR713	1-216-295-00	METAL CHIP 0 5% 1/10W
JR714	1-216-296-00	METAL CHIP 0 5% 1/8W
JR715	1-216-296-00	METAL CHIP 0 5% 1/8W
JR716	1-216-296-00	METAL CHIP 0 5% 1/8W
JR717	1-216-296-00	METAL CHIP 0 5% 1/8W
JR718	1-216-296-00	METAL CHIP 0 5% 1/8W
JR719	1-216-296-00	METAL CHIP 0 5% 1/8W
JR720	1-216-296-00	METAL CHIP 0 5% 1/8W
JR721	1-216-296-00	METAL CHIP 0 5% 1/8W
JR722	1-216-296-00	METAL CHIP 0 5% 1/8W
JR723	1-216-296-00	METAL CHIP 0 5% 1/8W
JR724	1-216-296-00	(AEP,E,AUS,FRENCH) ...METAL CHIP 0 5% 1/8W
JR725	1-216-296-00	METAL CHIP 0 5% 1/8W
JR726	1-216-296-00	METAL CHIP 0 5% 1/8W
JR727	1-216-296-00	METAL CHIP 0 5% 1/8W
JR728	1-216-296-00	METAL CHIP 0 5% 1/8W
JR729	1-216-296-00	METAL CHIP 0 5% 1/8W
JR730	1-216-296-00	METAL CHIP 0 5% 1/8W
JR731	1-216-295-00	METAL CHIP 0 5% 1/10W
JR732	1-216-296-00	METAL CHIP 0 5% 1/8W
JR733	1-216-296-00	METAL CHIP 0 5% 1/8W
JR734	1-216-295-00	METAL CHIP 0 5% 1/10W
JR735	1-216-295-00	METAL CHIP 0 5% 1/10W
JR736	1-216-295-00	METAL CHIP 0 5% 1/10W
JR737	1-216-296-00	METAL CHIP 0 5% 1/8W
JR740	1-216-296-00	METAL CHIP 0 5% 1/8W
JR743	1-216-296-00	METAL CHIP 0 5% 1/8W
JR745	1-216-296-00	METAL CHIP 0 5% 1/8W
JR746	1-216-296-00	METAL CHIP 0 5% 1/8W
JR747	1-216-295-00	METAL CHIP 0 5% 1/10W
JR748	1-216-296-00	METAL CHIP 0 5% 1/8W
JR749	1-216-296-00	METAL CHIP 0 5% 1/8W
JR750	1-216-296-00	METAL CHIP 0 5% 1/8W
JR751	1-216-296-00	METAL CHIP 0 5% 1/8W
JR752	1-216-296-00	METAL CHIP 0 5% 1/8W
JR753	1-216-295-00	METAL CHIP 0 5% 1/10W
JR754	1-216-296-00	(UK)......METAL CHIP 0 5% 1/8W
JR755	1-216-295-00	(E,AUS)...METAL CHIP 0 5% 1/10W
JR756	1-216-295-00	(UK)...METAL CHIP 0 5% 1/10W
JR757	1-216-296-00	(UK)...METAL CHIP 0 5% 1/8W
JR758	1-216-295-00	METAL CHIP 0 5% 1/10W
JR759	1-216-295-00	METAL CHIP 0 5% 1/10W

ELECTRICAL PARTS

Ref.No.	Part No.	Description
L101	1-410-526-11	MICRO INDUCTOR 10UH
L102	1-410-526-11	MICRO INDUCTOR 10UH
L103	1-410-526-11	MICRO INDUCTOR 10UH
L201	1-410-526-11	MICRO INDUCTOR 10UH
L202	1-410-526-11	MICRO INDUCTOR 10UH
L203	1-410-526-11	MICRO INDUCTOR 10UH
L401	1-410-526-11	MICRO INDUCTOR 10UH
L402	1-410-526-11	MICRO INDUCTOR 10UH
L501	1-410-526-11	MICRO INDUCTOR 10UH
L502	1-410-527-11	MICRO INDUCTOR 100UH
L503	1-410-393-11	INDUCTOR CHIP 100UH
L504	1-459-639-11	COIL (WITH CORE)
L601	1-405-982-00	COIL, OSC (SW1)
L602	1-410-328-11	MICRO INDUCTOR 10UH
L701	1-459-641-11	COIL (WITH CORE)
L702	1-459-642-11	COIL (WITH CORE)
L705	1-410-209-51	INDUCTOR CHIP 27UH
L706	1-410-196-11	INDUCTOR CHIP 2.2UH
L707	1-410-196-11	INDUCTOR CHIP 2.2UH
L708	1-410-204-41	INDUCTOR CHIP 10UH
L710	1-410-209-51	INDUCTOR CHIP 27UH
L711	1-402-131-11	ANTENNA, FERRITE-ROD (MW)
L712	1-410-209-51	INDUCTOR CHIP 27UH
M901	1-541-318-11	MOTOR
M902	A-3133-241-A	MOTOR ASSY, CLV
MF701	1-527-383-00	FILTER, MECHANICAL
ND801	1-807-331-11	MODULE, LCD
PS401	1-532-605-00	(UK)...LINK, IC
PS402	1-532-605-21	(UK)...LINK, IC
PS403	1-532-605-00	(UK)...LINK, IC
Q1	8-729-101-07	TRANSISTOR 2SB798
Q2	8-729-162-44	TRANSISTOR 2SB624-BV4
Q3	8-729-159-64	TRANSISTOR 2SD596
Q4	8-729-159-64	TRANSISTOR 2SD596
Q5	8-729-159-64	TRANSISTOR 2SD596
Q101	8-729-159-64	TRANSISTOR 2SD596
Q102	8-729-159-64	TRANSISTOR 2SD596
Q201	8-729-159-64	TRANSISTOR 2SD596
Q202	8-729-159-64	TRANSISTOR 2SD596
Q301	8-729-901-00	TRANSISTOR DTC124EK
Q302	8-729-901-00	TRANSISTOR DTC124EK
Q303	8-729-901-05	TRANSISTOR DTA124EK
Q304	8-729-159-64	TRANSISTOR 2SD596
Q305	8-729-100-66	TRANSISTOR 2SC1623
Q306	8-729-901-05	TRANSISTOR DTA124EK
Q307	8-729-100-66	TRANSISTO 2SC1623
Q401	8-729-901-05	TRANSISTOR DTA124EK
Q402	8-729-903-10	TRANSISTOR FMW1
Q403	8-729-101-07	TRANSISTOR 2SB798
Q404	8-729-902-96	TRANSISTOR FMS1
Q405	8-729-199-92	TRANSISTOR 2SD999
Q406	8-729-162-44	TRANSISTOR 2SB624-BV4
Q407	8-729-903-10	TRANSISTOR FMW1
Q408	8-729-805-20	TRANSISTOR 2SB1202
Q409	8-729-162-44	TRANSISTOR 2SB624-BV4

ELECTRICAL PARTS

Ref.No.	Part No.	Description
Q410	8-729-901-05	TRANSISTOR DTA124EK
Q411	8-729-159-64	TRANSISTOR 2SD596
Q412	8-729-100-76	(AEP,E,AUS,FRENCH)...TRANSISTOR 2SA812
Q501	8-729-902-93	TRANSISTOR FMG4
Q502	8-729-901-05	TRANSISTOR DTA124EK
Q503	8-729-901-00	TRANSISTOR DTC124EK
Q504	8-729-159-64	TRANSISTOR 2SD596
Q505	8-729-159-64	TRANSISTOR 2SD596
Q506	8-729-162-44	TRANSISTOR 2SB624-BV4
Q507	8-729-901-00	TRANSISTOR DTC124EK
Q508	8-729-900-74	TRANSISTOR DTC143TS
Q605	8-729-903-10	TRANSISTOR FMW1
Q606	8-729-100-76	TRANSISTOR 2SA812
Q701	8-729-200-87	TRANSISTOR 2SC2714-Y
Q702	8-729-102-06	TRANSISTOR 2SC2223
Q703	8-729-102-06	TRANSISTOR 2SC2223
Q704	8-729-159-64	(UK).......TRANSISTOR 2SD596
Q706	8-729-102-06	TRANSISTOR 2SC2223
Q707	8-729-159-64	TRANSISTOR 2SD596
Q708	8-729-903-60	TRANSISTOR 2SD1664
Q710	8-729-159-64	TRANSISTOR 2SD596
Q711	8-729-271-23	TRANSISTOR 2SC2712
Q712	8-729-162-44	TRANSISTOR 2SB624-BV4
Q713	8-729-901-01	TRANSISTOR DTC144EK
Q801	8-729-901-05	TRANSISTOR DTA124EK
Q802	8-729-901-46	TRANSISTOR DTC114YK
R2	1-216-097-00	METAL CHIP 100K 5% 1/10W
R3	1-216-101-00	METAL CHIP 150K 5% 1/10W
R4	1-216-061-00	METAL CHIP 3.3K 5% 1/10W
R5	1-216-093-00	METAL CHIP 68K 5% 1/10W
R6	1-216-057-00	METAL CHIP 2.2K 5% 1/10W
R7	1-216-081-00	METAL CHIP 22K 5% 1/10W
R8	1-216-105-00	METAL CHIP 220K 5% 1/10W
R9	1-216-091-00	METAL CHIP 56K 5% 1/10W
R10	1-216-095-00	METAL CHIP 82K 5% 1/10W
R11	1-216-073-00	METAL CHIP 10K 5% 1/10W
R13	1-216-326-11	METAL CHIP 1.8K 1% 1/10W
R14	1-216-073-00	METAL CHIP 10K 5% 1/10W
R15	1-216-027-00	METAL CHIP 120 5% 1/10W
R17	1-216-073-00	METAL CHIP 10K 5% 1/10W
R18	1-216-091-00	METAL CHIP 56K 5% 1/10W
R19	1-216-049-00	METAL CHIP 1K 5% 1/10W
R20	1-216-063-00	METAL CHIP 3.9K 5% 1/10W
R21	1-216-043-00	METAL CHIP 560 5% 1/10W
R22	1-216-057-00	METAL CHIP 2.2K 5% 1/10W
R23	1-216-129-00	METAL CHIP 2.2M 5% 1/10W
R24	1-216-164-00	METAL CHIP 39 5% 1/8W
R25	1-216-164-00	METAL CHIP 39 5% 1/8W
R26	1-216-107-00	METAL CHIP 270K 5% 1/10W
R27	1-216-073-00	METAL CHIP 10K 5% 1/10W
R28	1-216-049-00	METAL CHIP 1K 5% 1/10W
R30	1-216-061-00	METAL CHIP 3.3K 5% 1/10W
R31	1-216-105-00	METAL CHIP 220K 5% 1/10W
R32	1-216-121-00	METAL CHIP 1M 5% 1/10W
R33	1-216-081-00	METAL CHIP 22K 5% 1/10W
R35	1-216-071-00	METAL CHIP 8.2K 5% 1/10W

ELECTRICAL PARTS

Ref.No.	Part No.	Description
R101	1-216-334-11	METAL CHIP 22K 1% 1/10W
R102	1-216-333-11	METAL CHIP 15K 1% 1/10W
R103	1-216-329-11	METAL CHIP 5.1K 1% 1/10W
R104	1-216-336-11	METAL CHIP 47K 1% 1/10W
R105	1-216-336-11	METAL CHIP 47K 1% 1/10W
R106	1-216-334-11	METAL CHIP 22K 1% 1/10W
R107	1-216-329-11	METAL CHIP 5.1K 1% 1/10W
R108	1-216-336-11	METAL CHIP 47K 1% 1/10W
R109	1-216-336-11	METAL CHIP 47K 1% 1/10W
R110	1-216-334-11	METAL CHIP 22K 1% 1/10W
R111	1-216-518-00	METAL CHIP 2.2K 1% 1/10W
R112	1-216-518-00	METAL CHIP 2.2K 1% 1/10W
R113	1-216-326-11	METAL CHIP 1.8K 1% 1/10W
R114	1-216-333-11	METAL CHIP 15K 1% 1/10W
R115	1-216-328-11	METAL CHIP 4.3K 1% 1/10W
R116	1-216-333-11	METAL CHIP 15K 1% 1/10W
R117	1-216-328-11	METAL CHIP 4.3K 1% 1/10W
R118	1-216-037-00	METAL CHIP 330 5% 1/10W
R119	1-216-033-00	METAL CHIP 220 5% 1/10W
R120	1-216-073-00	METAL CHIP 10K 5% 1/10W
R122	1-216-089-00	METAL CHIP 47K 5% 1/10W
R124	1-216-067-00	METAL CHIP 5.6K 5% 1/10W
R125	1-216-087-00	METAL CHIP 39K 5% 1/10W
R126	1-216-073-00	METAL CHIP 10K 5% 1/10W
R127	1-216-160-00	METAL CHIP 27 5% 1/8W
R128	1-216-033-00	METAL CHIP 220 5% 1/10W
R129	1-216-059-00	METAL CHIP 2.7K 5% 1/10W
R130	1-216-059-00	METAL CHIP 2.7K 5% 1/10W
R201	1-216-334-11	METAL CHIP 22K 1% 1/10W
R202	1-216-333-11	METAL CHIP 15K 1% 1/10W
R203	1-216-329-11	METAL CHIP 5.1K 1% 1/10W
R204	1-216-336-11	METAL CHIP 47K 1% 1/10W
R205	1-216-336-11	METAL CHIP 47K 1% 1/10W
R206	1-216-334-11	METAL CHIP 22K 1% 1/10W
R207	1-216-329-11	METAL CHIP 5.1K 1% 1/10W
R208	1-216-336-11	METAL CHIP 47K 1% 1/10W
R209	1-216-336-11	METAL CHIP 47K 1% 1/10W
R210	1-216-334-11	METAL CHIP 22K 1% 1/10W
R211	1-216-518-00	METAL CHIP 2.2K 1% 1/10W
R212	1-216-518-00	METAL CHIP 2.2K 1% 1/10W
R213	1-216-326-11	METAL CHIP 1.8K 1% 1/10W
R214	1-216-333-11	METAL CHIP 15K 1% 1/10W
R215	1-216-328-11	METAL CHIP 4.3K 1% 1/10W
R216	1-216-333-11	METAL CHIP 15K 1% 1/10W
R217	1-216-328-11	METAL CHIP 4.3K 1% 1/10W
R218	1-216-037-00	METAL CHIP 330 5% 1/10W
R219	1-216-033-00	METAL CHIP 220 5% 1/10W
R220	1-216-073-00	METAL CHIP 10K 5% 1/10W
R222	1-216-089-00	METAL CHIP 47K 5% 1/10W
R224	1-216-067-00	METAL CHIP 5.6K 5% 1/10W
R225	1-216-087-00	METAL CHIP 39K 5% 1/10W
R226	1-216-073-00	METAL CHIP 10K 5% 1/10W
R227	1-216-160-00	METAL CHIP 27 5% 1/8W
R228	1-216-033-00	METAL CHIP 220 5% 1/10W
R229	1-216-059-00	METAL CHIP 2.7K 5% 1/10W
R230	1-216-059-00	METAL CHIP 2.7K 5% 1/10W
R301	1-216-089-00	METAL CHIP 47K 5% 1/10W

ELECTRICAL PARTS

Ref.No.	Part No.	Description
R302	1-216-073-00	METAL CHIP 10K 5% 1/10W
R303	1-216-083-00	METAL CHIP 27K 5% 1/10W
R304	1-216-059-00	METAL CHIP 2.7K 5% 1/10W
R305	1-216-105-00	METAL CHIP 220K 5% 1/10W
R306	1-216-075-00	METAL CHIP 12K 5% 1/10W
R307	1-216-085-00	METAL CHIP 33K 5% 1/10W
R308	1-216-089-00	METAL CHIP 47K 5% 1/10W
R309	1-216-109-00	METAL CHIP 330K 5% 1/10W
R310	1-216-105-00	METAL CHIP 220K 5% 1/10W
R401	1-216-065-00	METAL CHIP 4.7K 5% 1/10W
R402	1-216-089-00	METAL CHIP 47K 5% 1/10W
R403	1-216-056-00	METAL CHIP 2K 5% 1/10W
R404	1-216-065-00	METAL CHIP 4.7K 5% 1/10W
R405	1-216-089-00	METAL CHIP 47K 5% 1/10W
R406	1-216-065-00	METAL CHIP 4.7K 5% 1/10W
R409	1-216-049-00	METAL CHIP 1K 5% 1/10W
R410	1-216-049-00	METAL CHIP 1K 5% 1/10W
R412	1-216-055-00	METAL CHIP 1.8K 5% 1/10W
R413	1-216-055-00	METAL CHIP 1.8K 5% 1/10W
R414	1-216-070-00	METAL CHIP 7.5K 5% 1/10W
R415	1-216-081-00	METAL CHIP 22K 5% 1/10W
R416	1-216-059-00	METAL CHIP 2.7K 5% 1/10W
R417	1-202-852-00	(UK)....SOLID 4.7 1/4W F
R418	1-216-041-00	METAL CHIP 470 5% 1/10W
R419	1-202-858-00	SOLID 47 1/4W F
R501	1-216-081-00	METAL CHIP 22K 5% 1/10W
R502	1-216-081-00	METAL CHIP 22K 5% 1/10W
R503	1-216-105-00	METAL CHIP 220K 5% 1/10W
R504	1-216-081-00	METAL CHIP 22K 5% 1/10W
R505	1-216-057-00	METAL CHIP 2.2K 5% 1/10W
R506	1-216-083-00	(UK)...METAL CHIP 27K 5% 1/10W
R507	1-216-097-00	METAL CHIP 100K 5% 1/10W
R508	1-216-065-00	METAL CHIP 4.7K 5% 1/10W
R509	1-216-041-00	METAL CHIP 470 5% 1/10W
R510	1-216-073-00	METAL CHIP 10K 5% 1/10W
R511	1-216-093-00	METAL CHIP 68K 5% 1/10W
R512	1-216-089-00	METAL CHIP 47K 5% 1/10W
R513	1-216-081-00	METAL CHIP 22K 5% 1/10W
R514	1-216-065-00	METAL CHIP 4.7K 5% 1/10W
R515	1-216-049-00	METAL CHIP 1K 5% 1/10W
R516	1-216-121-00	METAL CHIP 1M 5% 1/10W
R517	1-216-095-00	METAL CHIP 82K 5% 1/10W
R518	1-216-091-00	METAL CHIP 56K 5% 1/10W
R519	1-216-073-00	METAL CHIP 10K 5% 1/10W
R520	1-216-075-00	METAL CHIP 12K 5% 1/10W
R521	1-216-097-00	METAL CHIP 100K 5% 1/10W
R523	1-216-089-00	METAL CHIP 47K 5% 1/10W
R524	1-216-067-00	METAL CHIP 5.6K 5% 1/10W
R525	1-216-081-00	METAL CHIP 22K 5% 1/10W
R526	1-216-089-00	METAL CHIP 47K 5% 1/10W
R527	1-216-077-00	METAL CHIP 15K 5% 1/10W
R528	1-216-065-00	METAL CHIP 4.7K 5% 1/10W
R529	1-216-073-00	METAL CHIP 10K 5% 1/10W
R530	1-216-073-00	METAL CHIP 10K 5% 1/10W
R531	1-216-073-00	METAL CHIP 10K 5% 1/10W
R532	1-216-073-00	METAL CHIP 10K 5% 1/10W
R533	1-216-073-00	METAL CHIP 10K 5% 1/10W

ELECTRICAL PARTS

Ref.No.	Part No.	Description
R534	1-216-009-00	METAL CHIP 22 5% 1/10W
R535	1-216-009-00	METAL CHIP 22 5% 1/10W
R536	1-216-071-00	METAL CHIP 8.2K 5% 1/10W
R538	1-247-867-00	CARBON 33K 5% 1/6W
R539	1-216-134-00	METAL CHIP 2.2 5% 1/8W
R540	1-216-134-00	METAL CHIP 2.2 5% 1/8W
R541	1-216-061-00	METAL CHIP 3.3K 5% 1/10W
R542	1-216-057-00	METAL CHIP 2.2K 5% 1/10W
R543	1-216-065-00	METAL CHIP 4.7K 5% 1/10W
R544	1-216-134-00	METAL CHIP 2.2 5% 1/8W
R545	1-216-134-00	METAL CHIP 2.2 5% 1/8W
R547	1-216-081-00	METAL CHIP 22K 5% 1/10W
R548	1-216-089-00	METAL CHIP 47K 5% 1/10W
R550	1-216-121-00	METAL CHIP 1M 5% 1/10W
R552	1-216-081-00	METAL CHIP 22K 5% 1/10W
R553	1-216-089-00	METAL CHIP 47K 5% 1/10W
R554	1-216-134-00	METAL CHIP 2.2 5% 1/8W
R555	1-216-134-00	METAL CHIP 2.2 5% 1/8W
R556	1-216-134-00	METAL CHIP 2.2 5% 1/8W
R557	1-216-134-00	METAL CHIP 2.2 5% 1/8W
R558	1-216-097-00	METAL CHIP 100K 5% 1/10W
R561	1-216-121-00	METAL CHIP 1M 5% 1/10W
R562	1-216-113-00	METAL CHIP 470K 5% 1/10W
R563	1-216-053-00	METAL CHIP 1.5K 5% 1/10W
R564	1-216-073-00	METAL CHIP 10K 5% 1/10W
R565	1-247-903-00	CARBON 1M 5% 1/6W
R601	1-216-065-00	METAL CHIP 4.7K 5% 1/10W
R603	1-216-065-00	METAL CHIP 4.7K 5% 1/10W
R604	1-216-059-00	METAL CHIP 2.7K 5% 1/10W
R605	1-216-338-11	METAL CHIP 30K 1% 1/10W
R606	1-216-338-11	METAL CHIP 30K 1% 1/10W
R607	1-216-065-00	METAL CHIP 4.7K 5% 1/10W
R608	1-216-329-11	METAL CHIP 5.1K 1% 1/10W
R609	1-216-085-00	METAL CHIP 33K 5% 1/10W
R610	1-216-049-00	METAL CHIP 1K 5% 1/10W
R611	1-216-097-00	METAL CHIP 100K 5% 1/10W
R612	1-216-065-00	METAL CHIP 4.7K 5% 1/10W
R613	1-216-097-00	METAL CHIP 100K 5% 1/10W
R614	1-216-081-00	METAL CHIP 22K 5% 1/10W
R617	1-216-081-00	METAL CHIP 22K 5% 1/10W
R618	1-216-089-00	METAL CHIP 47K 5% 1/10W
R621	1-216-085-00	METAL CHIP 33K 5% 1/10W
R622	1-216-121-00	METAL CHIP 1M 5% 1/10W
R623	1-216-093-00	METAL CHIP 68K 5% 1/10W
R624	1-216-065-00	METAL CHIP 4.7K 5% 1/10W
R625	1-216-081-00	METAL CHIP 22K 5% 1/10W
R626	1-216-101-00	METAL CHIP 150K 5% 1/10W
R628	1-216-101-00	METAL CHIP 150K 5% 1/10W
R630	1-216-111-00	METAL CHIP 390K 5% 1/10W
R631	1-216-099-00	METAL CHIP 120K 5% 1/10W
R632	1-216-103-00	METAL CHIP 180K 5% 1/10W
R633	1-216-097-00	METAL CHIP 100K 5% 1/10W
R634	1-216-089-00	METAL CHIP 47K 5% 1/10W
R635	1-216-073-00	METAL CHIP 10K 5% 1/10W
R636	1-216-073-00	METAL CHIP 10K 5% 1/10W
R701	1-216-081-00	METAL CHIP 22K 5% 1/10W
R702	1-216-025-00	METAL CHIP 100 5% 1/10W

ELECTRICAL PARTS

Ref.No.	Part No.	Description
R703	1-216-089-00	METAL CHIP 47K 5% 1/10W
R704	1-216-089-00	METAL CHIP 47K 5% 1/10W
R705	1-216-113-00	METAL CHIP 470K 5% 1/10W
R706	1-216-013-00	METAL CHIP 33 5% 1/10W
R707	1-216-081-00	METAL CHIP 22K 5% 1/10W
R708	1-216-013-00	METAL CHIP 33 5% 1/10W
R709	1-216-113-00	METAL CHIP 470K 5% 1/10W
R710	1-216-085-00	METAL CHIP 33K 5% 1/10W
R711	1-216-113-00	METAL CHIP 470K 5% 1/10W
R712	1-216-085-00	METAL CHIP 33K 5% 1/10W
R713	1-216-013-00	METAL CHIP 33 5% 1/10W
R714	1-216-085-00	METAL CHIP 33K 5% 1/10W
R715	1-216-037-00	METAL CHIP 330 5% 1/10W
R716	1-216-037-00	METAL CHIP 330 5% 1/10W
R717	1-216-142-00	(UK)....METAL CHIP 4.7 5% 1/8W
R725	1-216-073-00	(AEP,UK,FRENCH)... METAL CHIP 10K 5% 1/10W
R726	1-216-113-00	METAL CHIP 470K 5% 1/10W
R727	1-216-113-00	METAL CHIP 470K 5% 1/10W
R728	1-216-113-00	METAL CHIP 470K 5% 1/10W
R729	1-216-025-00	METAL CHIP 100 5% 1/10W
R730	1-216-113-00	METAL CHIP 470K 5% 1/10W
R731	1-216-049-00	METAL CHIP 1K 5% 1/10W
R732	1-216-109-00	METAL CHIP 330K 5% 1/10W
R733	1-216-049-00	METAL CHIP 1K 5% 1/10W
R734	1-216-073-00	METAL CHIP 10K 5% 1/10W
R735	1-216-061-00	METAL CHIP 3.3K 5% 1/10W
R736	1-216-069-00	METAL CHIP 6.8K 5% 1/10W
R738	1-216-109-00	METAL CHIP 330K 5% 1/10W
R740	1-216-089-00	METAL CHIP 47K 5% 1/10W
R741	1-216-089-00	METAL CHIP 47K 5% 1/10W
R742	1-216-013-00	METAL CHIP 33 5% 1/10W
R743	1-216-051-00	METAL CHIP 1.2K 5% 1/10W
R744	1-216-113-00	METAL CHIP 470K 5% 1/10W
R745	1-216-049-00	METAL CHIP 1K 5% 1/10W
R746	1-216-059-00	METAL CHIP 2.7K 5% 1/10W
R747	1-216-049-00	METAL CHIP 1K 5% 1/10W
R748	1-216-059-00	METAL CHIP 2.7K 5% 1/10W
R750	1-216-069-00	METAL CHIP 6.8K 5% 1/10W
R753	1-216-073-00	METAL CHIP 10K 5% 1/10W
R756	1-216-049-00	METAL CHIP 1K 5% 1/10W
R761	1-216-011-00	METAL CHIP 27 5% 1/10W
R762	1-216-067-00	METAL CHIP 5.6K 5% 1/10W
R801	1-216-081-00	METAL CHIP 22K 5% 1/10W
R802	1-216-081-00	METAL CHIP 22K 5% 1/10W
R805	1-216-081-00	METAL CHIP 22K 5% 1/10W
R806	1-216-109-00	METAL CHIP 330K 5% 1/10W
R807	1-216-081-00	METAL CHIP 22K 5% 1/10W
R808	1-216-081-00	(UK)...METAL CHIP 22K 5% 1/10W
R809	1-216-081-00	(UK)...METAL CHIP 22K 5% 1/10W
R810	1-216-063-00	METAL CHIP 3.9K 5% 1/10W
R814	1-216-069-00	METAL CHIP 6.8K 5% 1/10W
R815	1-216-336-11	METAL CHIP 47K 1% 1/10W
R816	1-216-087-00	METAL CHIP 39K 5% 1/10W
R817	1-216-087-00	METAL CHIP 39K 5% 1/10W
R818	1-216-097-00	METAL CHIP 100K 5% 1/10W
R819	1-216-009-00	METAL CHIP 22 5% 1/10W
R820	1-216-027-00	(AEP,E,AUS,FRENCH) ...METAL CHIP 120 5% 1/10W

ELECTRICAL PARTS

Ref.No.	Part No.	Description
RV1	1-237-091-11	RES, ADJ, METAL GLAZE 100K
RV2	1-237-091-11	RES, ADJ, METAL GLAZE 100K
RV301	1-237-092-11	RES, VAR, CARBON 10K/10K (VOLUME)
RV501	1-237-090-11	RES, ADJ, METAL GLAZE 22K
RV502	1-237-090-11	RES, ADJ, METAL GLAZE 22K
RV701	1-230-989-11	RES, ADJ, METAL GLAZE 4.7K
RV702	1-230-991-11	RES, ADJ, METAL GLAZE 22K
RV703	1-230-991-11	RES, ADJ, METAL GLAZE 22K
RV704	1-237-139-11	RES, VAR, CARBON 100K (TUNING)
S401	1-554-509-21	SWITCH, SLIDE (FUNCTION)
S701	1-570-397-11	(AEP,UK,FRENCH)..SWITCH, SLIDE(FM MODE)
S702	1-570-402-11	SWITCH, SLIDE (BAND/FM SENS)
S801	1-553-198-00	SWITCH, LEAF (LIMIT)
S802	1-554-911-11	SWITCH, LEAF (OPEN/CLOSE)
S803	1-554-371-00	SWITCH, TACT (PLAY-MODE)
S804	1-554-371-00	SWITCH, TACT (REMEIN/ENTER)
S805	1-554-371-00	SWITCH, TACT (KEY-MODE)
S806	1-554-371-00	SWITCH, TACT (PLAY/PAUSE)
S807	1-554-371-00	SWITCH, TACT (FF)
S808	1-554-371-00	SWITCH, TACT (FR)
S809	1-554-371-00	SWITCH, TACT (STOP)
T701	1-404-583-11	IFT
T702	1-406-177-11	COIL
T703	1-448-302-11	TRANSFORMER, DC-DC CONVERTER
X601	1-567-540-11	VIBRATOR, CRYSTAL, 8.4672MHz

ACCESSORY & PACKING MATERIAL

Part No.	Description
⚠1-463-700-11	(UK)...ADAPTOR, AC (AC-930A)
⚠1-463-701-11	(AUS)...ADAPTOR, AC (AC-930A)
⚠1-463-702-11	(E).....ADAPTOR, AC (AC-950W)
⚠1-463-705-11	(AEP,FRENCH)...ADAPTOR, AC (AC-930AEP)
1-526-565-00	(E)...AC PLUG ADAPTOR
1-555-658-21	CORD, CONNECTION
3-701-625-00	BAG, POLYETHYLENE
*3-764-443-11	(FRENCH)...INSTRUCTION
*3-764-464-01	(AEP)......INSTRUCTION
*3-795-629-11	(AEP)......INSTRUCTION
3-765-261-11	MANUAL, INSTRUCTION
3-765-261-41	(AEP)...MANUAL, INSTRUCTION
4-907-095-02	SHEET, PROTECTION
4-913-804-02	CARTON, ACCESSORY
4-913-830-01	(E)....SPACER
4-913-861-01	INDIVIDUAL CARTON
4-913-862-01	(FRENCH)...CARTON, HEADPHONE
4-913-865-01	CUSHION (RIGHT)
4-913-866-01	CUSHION (LEFT)
4-913-882-01	BELT, CARRYING
4-913-883-11	CASE, CARRYING
8-952-266-94	(FRENCH)...MDR-A10L/B
A-3101-056-A	BP-200

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

Les composants identifiés par une trame et une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.